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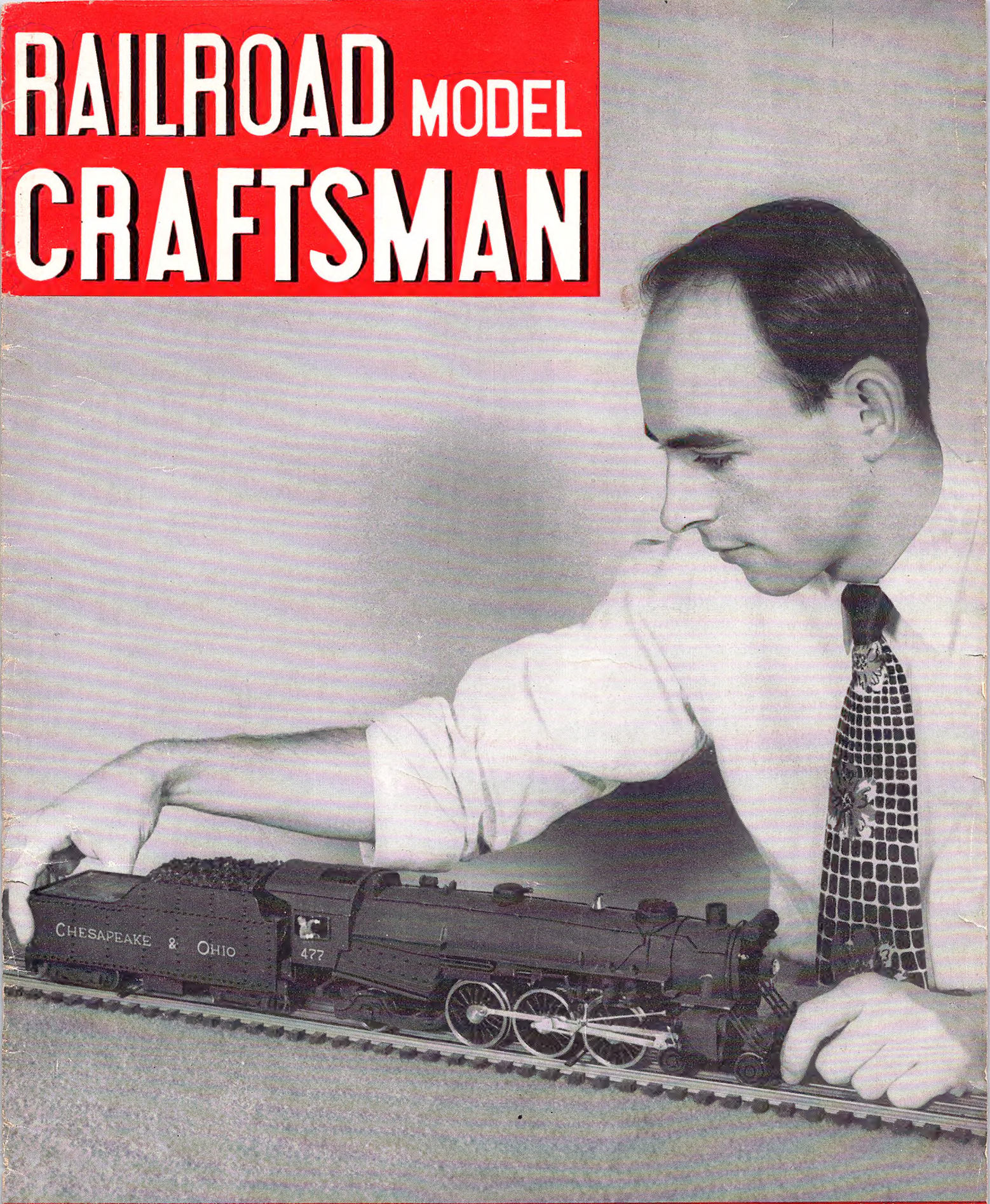

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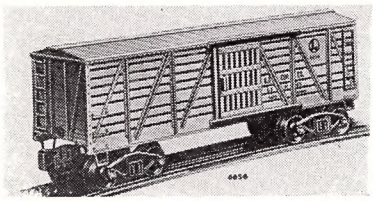

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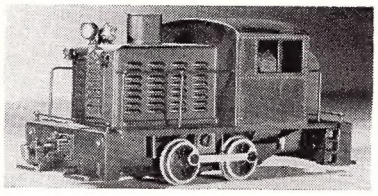

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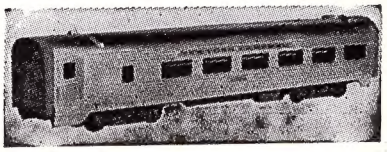

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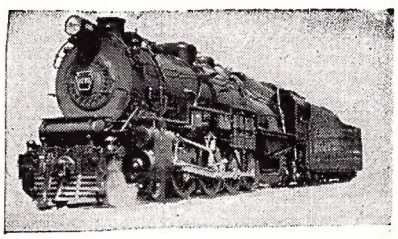

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Railroad Club News

APRIL 30th is the fifteenth anniversary of the Rhode Island Brotherhood of Model Railroaders and a convention is planned for that date. The organization plans to have motion pictures concerning railroads, portable layouts, stationary exhibits, manufacturers and dealers exhibits, door prizes and a luncheon. Tickets are on sale in most of the Rhode Island hobby shops and all railfans are invited to attend.

A MODEL railroad club has been formed in California's famed San Fernando Valley. Tex Guess (now president) organized the club which now boasts twenty active members, with meetings held in the various members homes until adequate layout space is acquired. Other officers include Don Packard, V-Pres.; Mark Swerdfeger, Sec.; and Lee Rose, Treas. Anyone interested in joining the club can get information from the secretary at his hobby shop in Studio City.

BALTIMORE, MD. On March 11th, the Baltimore Society of Model Engineers, one of the oldest clubs of its type in the country, celebrated their eighteenth anniversary with more than 200 members and guests present. The club was organized back in 1932 with a total of 13 members; all had one thing in common, their interest in railroads. Their first models would hardly be recognized as such today as each member built to his own ideas. These were the days before kits with die castings, stampings and plastics, and the NMRA. From their meager start and their first layout at 1613 Chester St., the club has now grown to one of the most progressive groups in the East. Their present O and HO gauge layouts, although uncompleted, are in full operating condition, located at 1217 W. North Ave.

OAKLAND, CALIF. Another Spring Show of the Eastbay Model Engineers Society will be held at club quarters (4075 Halleck St.) May 19-21. The unusual qualities of the Bay Area model trains will be displayed on 8.29 miles of O gauge main line with 13.20 scale miles of yards for switching and storage of hundreds of types of rolling stock. There are also 3½ scale miles of O gauge trolley double track main line with 2¼ scale miles of yard and 1½ miles of O narrow gauge.

In a separate room for the HO enthusiast are 5.64 scale miles of double track main line and approximately 2½ miles of HO trolley with yard trackage in proportion. About 50% more scenery and accessories have been added since the last public show—this means that the finer details are now under construction and the whole forms a very instructive and entertaining spectacle. Hours of the show are 7:30 to 10 pm. on Friday and 2:00 til 10:00 pm. on Saturday and Sunday. Tariff for adults is 50c, 25c for children.

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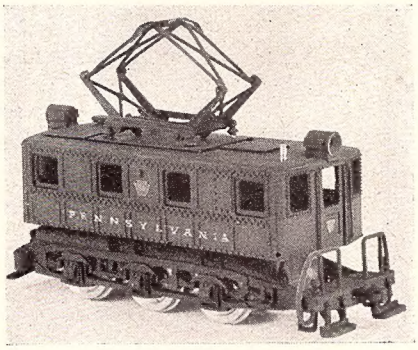

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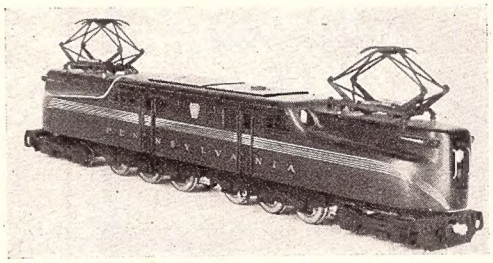

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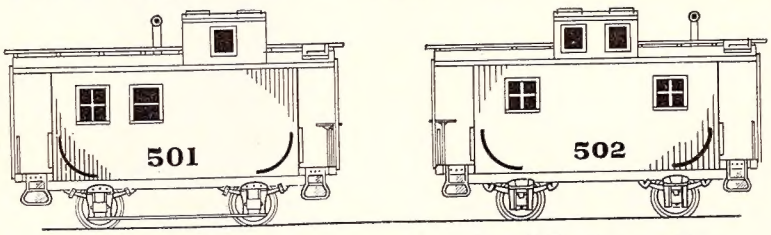

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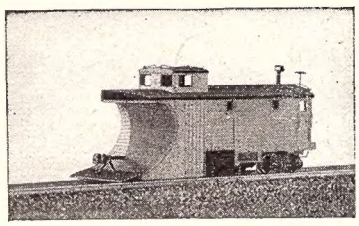

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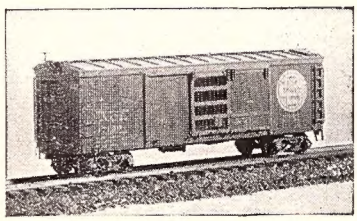

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Vol. 18, No. 12 MAY, 1950

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CONTENTS FOR MAY 1950

THE PANAMA RAILROAD—By Col. H. H. D. Heiberg 8
A single track Transcontinental line less than fifty miles long.

FLAGSTOP: THE PANAMA RAILROAD CLUB— By Col. H. H. D. Heiberg 10
Model Adaptation in O gauge of the Panama Railroad.

ANIMATE YOUR MODEL RAILROAD—By Bart Crosby..... 11
Miniature figures can make your miniature pike live. Here's how.

C.R.R. OF N. J.—FIRST DIESEL—By Warren B. Crater 12
Construction method for the Daddy of all Diesels.

A STANDARD GAUGE LAYOUT—By Bill Willmore 15
Typical wide-gauge layout, vintage 1920.

SCENIC RAILROAD BUILDING—By Sherman Dance 16
Modeling trees from common household materials.

HEAVY DUTY DUAL SIDE PIVOT DROP DOOR CAR 18
Prototype plans shown full size S gauge for this maintenance-of-way car.

YOUR NABOR'S PIKE 20
Photographs of models as built up by readers of Railroad Model Craftsman.

ALONG THE TINPLATE TRACK—By Louis H. Hertz 22
Number Two Gauge Trolleys

A TROLLEY EXPRESS CAR—By Long Valley Electric Ry. 24
A car typical of many electric lines throughout the country.

D L & W AMERICAN TYPE 4-4-0 26
Prototype plans for this light passenger locomotive

RAILROAD MODEL CRAFTSMAN LAYOUT No. 1— By Bill Schopp 29
An analysis of trouble shooting and maintenance problems.

RAILROAD CLUB NEWS 3

SAM, THE TROUBLE MAN 35

LAYOUT PROBLEMS 39

NEW PRODUCTS 46

———THIS MONTH'S COVER———

Ralph Wendelaar of Midland Park, New Jersey checking his O gauge Light Pacific. The loco chassis was purchased from a friend, other parts and tender were built up from scrap materials. Staff photo.

Published monthly by Model Craftsman Publishing Corp., Ramsey, N. J. Editorial, advertising and executive offices, Ramsey, N. J. Charles A. Penn, President and Treasurer. Helen M. Penn, Secretary. Entered as second-class matter June 7, 1948, at the Post Office at Ramsey, N. J., under the act of March 3, 1879. Price 35 cents per copy. Subscription $4.00 per year in the United States and Possessions. Canada, Foreign and Pan-American subscriptions $4.50 per year. The contents of this magazine must not be reprinted without permission. Articles, drawings and photos are welcome. When requested, we will endeavor to return all material in good condition if stamped envelope is enclosed. Unless stated otherwise by contributor, we will assume no remuneration is expected.
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J-3A Hudson Mainliner
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FEBRUARY
Erie 2-8-4
Model Tunnels
Motor Flat Cars

MARCH
HO Trolley Base
Trestles
70 Ton Covered Hopper

APRIL
80 Ton Diesel Elec. Switcher
OO Gauge Observation Car
Trestle Work Overpasses

MAY
Coal Trestles
Slaughter House
Interurban Observation Car

JUNE
Forty Foot Stock Car
Interurban Parlor Cars
Two Conversions

JULY
Layout Contest Winner
New York Central Mogul
Scale Test Car

AUGUST
Erie 4-6-2
Seaboard Pulp Car
Tinplate Switches

SEPTEMBER
UP all-steel Caboose
Shay Geared Loco
Realistic Fire Scene

OCTOBER
Narrow Gauge Roads
Layout & Principles
Brass & Bronze castings

NOVEMBER
NYC Fire Fighter Car
Old Time Box Car
Interurban Junction Station

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HO Derrick Car
NYC 4-8-2 (Mohawk)
Third Dimensional Background

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Track & Scene Building
Lift Bridge
HO Derrick Car

FEBRUARY
Lighting R.R. Layouts
HO Baggage Car
Testing Loco Motors

MARCH
A Miniature Sawmill
Pere Marquette 0-8-0 (Plans HO)
HO Hopper Car

APRIL
Cigar-Box Wood Caboose
Narrow Gauge Loco
Model Bridges

MAY
Narrow Gauge Cars and Tracks
Track and Switches
Troop Sleeper

JUNE
Low Wheeled 4-6-2 Pacific
Old Time Freight Cars
Model Hand Car

JULY
Railroad Station Project
Cantilever and Arch Bridges
Model Cattle Motor

AUGUST
Old Royal Blue Cars and Loco
Battery Charging Hints
Semi-Diesel Railcar

SEPTEMBER
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Motorized Wrecking Crane
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C & O Mountain Type Loco
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Laying Out HO Pikes
An Old-Fashioned House
Interurban Mail Car

JUNE
Radio Control for Pikes
Home-Made Rheostats
Tin Types trued to Life

JULY
Model Saw Mill
The Colonial House
Improve Tinplate trucks

AUGUST
SP A-6 Atlantic
Per Mag Switch Machine
Hobby House

SEPTEMBER
Pennsy's T-1 Loco
Remodeling kits
Unit Train Control Board

OCTOBER
Powerful Electric Engine (GG-1)
O Gauge Motors
An HO Bus

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6000 NYC Engine in HO
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Erie Caboose
C.V. Loco, 2-10-4 (HO)
Realistic Tinplate Cars

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How to Build Tunnels
Trolley Freight Service
C & NW Pacific (proto plans)

MARCH
Southern Pacific 4-4-0 (HO)
Bridges
Detail Design Data

APRIL
Wiring Circuit
HO Coal Tipple
Double Cab Work Car

MAY
Lighting Trains & Bldgs.
Terminal Throat
Pacific Electric Car

JUNE
HO Wood Box Car
Train Control Rheostat
B & O Mallets

JULY
V & T Passenger Station
HO Wood Gondola
Mother Hubbard 4-4-2

AUGUST
Pennsy E-6 Atlantic
3-Way Switch
Scenery Foundation

SEPTEMBER
Suburban Double Ender (2-6-2)
Express Reefer (HO)
Simple Interlocking Plant

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Loco Traveling Crane
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APRIL
Narrow Gauge Coaches
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Covered Bridge

MAY
DL & W Consolidation
Narrow Gauge Tank Loco
Combination Station

JUNE
Baker Valve Gear
B & O Pacific 4-6-2
Big City Car

JULY
Truss Bridge
Cable Car
Pennsy Mikado 2-8-2

AUGUST
Boston & Maine Atlantic
Signal Control
Model Bungalows

SEPTEMBER
Finishing Your Rolling Stock
Interurban Sand Car
Micro Trains (HOO)

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Reading 4-4-2

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Trolley Street Sprinkler
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Search Light Car

APRIL
General Electric 0-4-4-0
Fuel Dealers Yard
Building a Bunk Car

MAY
Diesel Passenger Loco
Old Time Passenger trolley
The Little B & O

JUNE
Current Collectors
Getting Started
Arched Roof Coach

JULY
Automatic Wyes
Streamlined Cars
Pile Driver Car

AUGUST
SP 0-6-0 Switcher
Trolley Pole Bases
CP 3 Door Baggage Car

SEPTEMBER
Dining Lounge Observation
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Train of Tomorrow

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Express Cars
Enclosed Motor Drive
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NOVEMBER
Turntable for HO
Electric Trolley Loco
TT Water Tank

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Milk Cars
Phantom Car

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Railroadin'

WITH BEN

Seems like more and more railroaders are finding out about the *new* Bowser 4-8-2 Mountain job because the orders have been picking up over the past month. The whole motor and drive unit have been changed and modified till I think it's one of the best babies ever to whistle through a flag stop. I've seen this Bowser pull fifty cars less the weight in the boiler. How's that sound to you? The technical boys will be pleased about the super flex in the drive shaft because there's not much tort in the motor with a trim setup like that. *This new method gives all the power to the drivers, right where it belongs.* So for my money, the $42.50 a guy spends on the kit is well placed.

Seen the new Laconia Passenger Cars? People have been waiting all up and down the pike for them and they're finally here. These Laconia's are sweet looking cars with painted sides of green or red, *with the windows right on the sides.* Some of the boys around here said the sides looked like cardboard, but they're really on the same order as J.C.'s Silver sides —tin foil. The diecast parts are all there: generator, cross beams, brake cylinder, steps, triple valve, and ventilators. *And for once, the plans are self-explanatory.* The whole works . . . just $2.75—less trucks, of course. The assembly time runs about four hours, unless the missus drags you out to a movie.

If there are any "O" gaugers stewing about looking for car kits for more rolling stock on the Lionel lines, the Westbrook Car Kits are the answer. Lots of fellows been coming in saying how well they worked out. There's all sorts of cars: reefers, box cars, autocars, with a big *assortment of sides not attainable in the regular Lionel cars.* They come equipped with dummy couplers which couple in with your Lionel automatic couplers at no trouble whatsoever. It might pay you to try one, and I'll bet you the Pennsylvania Railroad to a doughnut that you'll be ordering more before the month is out. Price complete with tinplate trucks just $3.95.

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BEN

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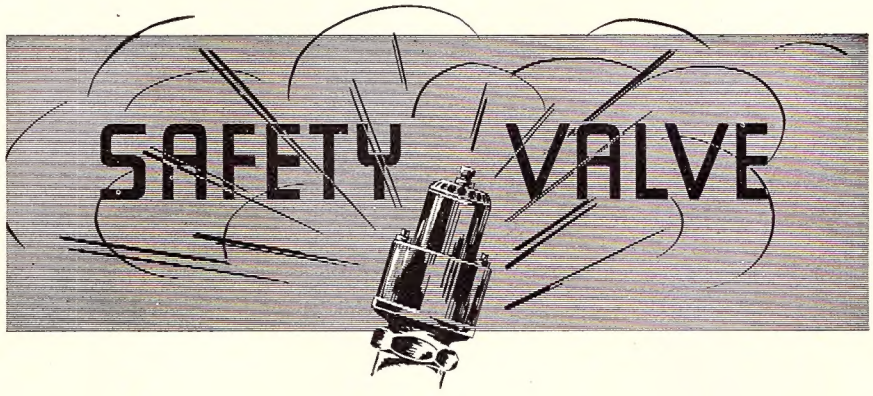


That Middle-Age Spread

Have just finished reading the Layout Doctor's article on *Duck-Unders* (Feb. '50) and am inclined to disagree with him on the suggestion that they be eliminated wherever possible. My reason for not doing away with them is purely personal however it applies to fellows who, like myself, are reaching the age where it is very easy to add inches and pounds to the waistline.

I find that ducking under my layout and crawling on my knees to reach my operating space is a form of exercise I would probably not get otherwise. Seriously, I have purposely included the duck-unders for the reason stated but feel that enough space be allotted for visitors to view the layout without having to brave the maze of wires, supports, uprights, etc. of "no man's land," 150 scale feet down under . . . *Tom Beresford, Tarzana, Calif.*

Attention J. C. Fans

I have been reading the Model Craftsman for several years, but up to recently have not done much building. I am now intent on building HO gauge models of Jersey Central equipment and want to thank you for the many interesting articles you have printed on this railroad. My layout will include some of the trackwork shown in your July issue ('49) on the four railroads, interchanges, junctions and yards, all in the small space. Of course I've never seen the actual set-up but it should present some mighty fine operational possibilities. I'd like to hear from any other modelers who have patterned their model railroad after this prototype . . . *Chas. M. French, Los Angeles, Calif.*

Camelback in HO

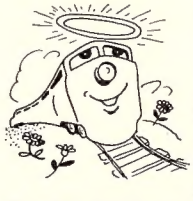
Have just read your column "Layout Problems" (Feb. '50) and in regards to your writer on the ten wheeler Camelback. Please enter my vote in favor of this type of kit in HO. I have tried to figure how I could assemble from manufactured kits and parts something as well proportioned as the DL & W or Reading —NJC Mother Hubbard locomotives.

I was born and brought up in E. Orange (NJ) but am now a Florida cracker which explains my appreciation of this type loco. I hope your writer finds enough reason, at a reasonable price, to go ahead with his plans. That price should be less than $40 with tender or $30 without. Good luck to him . . . *J. C. Nordt, Coconut Grove, Fla.*

RR Officials Pick Winner

In the March 1950 issue, W. W. Hunt states that "a steam loco in the hands of a real steam engineer will . . . outpull a train all by itself that is bigger, heavier and longer with speeds that no diesel will equal." Mr. Hart seems to think the American railroads are neglecting a wonderful prime mover.

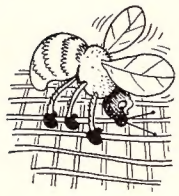
Well, let's look at the locomotive which is eclipsing the steam loco. It has been proven that using diesel locos means: faster scheduled operation; as much as 30 to 40% decrease in both operating and maintenance costs; a higher availability; freedom from costly services such as ash dumping and removal, water treatment and storage, coal handling and storage; less wear on track; uniform operation in variations of weather, climate and terrain; and less backshopping facilities needed. The diesel may be slightly slower than the steam loco, yet, because of such factors as faster acceleration, higher uphill speeds, ability to take curves faster (due to lower center of gravity), minimum service stops and the elimination of loco changes; a diesel loco makes the run from Chicago to the Pacific Coast in ten hours less than a steam loco. Thus the modern railroad saves money by using diesels. If the railroad officials do spend their time in playing horses, they should be able to win at them for they have shown by their widespread use of diesel power that they know how to pick a winner . . . *Don Lodge, Cedar Rapids, Iowa.*



The "Safety Valve" is reserved for reader use only. All letters are unedited and are the writers own opinions.

Scale Screening

Mr. Bogart queried as to how the 525-540 mesh television tube screen would look in interurban windows as a screen being closest to scale for O gauge (Feb. '50). Wm. Schopp was kind enough to send me a piece or two of it and I tried it out for a while in my interurban diner. True it is fragile but the chief objection I found with it was it didn't look like screen. Common fly screen is about 1/5 metal and 4/5 air space by area. As the size of mesh gets smaller the wire size gets proportionately larger per mesh square so the metal to space ratio changes. This was true with the 540 mesh that Bill sent. It was predominently metal by area and appeared to be a solid sheet to the casual observer. I use both 100 and 200 mesh woven screen for my transoms, etc. which is stronger and admits enough light to look like screen. Even 200 mesh is a little small for good effect.



Where the 525-540 mesh would look good I believe is where a light is placed behind it to show through. My 200 mesh looks better this way although I don't usually light my cars because of the added amperage load lights would draw . . . *Bill Hoffmann, San Francisco, Calif.*

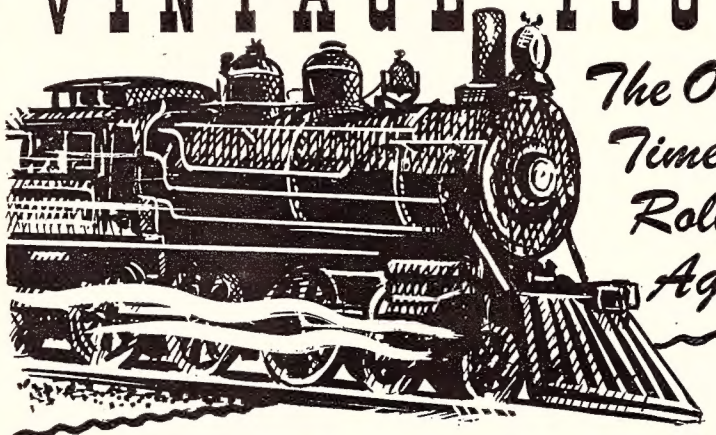
An English Prototype

My model railroad which is registered with you as the PENNVAN Railroad has undergone several changes. It will be a narrow gauge (three foot) and will use a combination of rolling stock not seen in this country of ours very often. The prototypes are locos and cars from the Isle of Man Railway and the now scrapped English Narrow Gauge Rwy which was known as the Lyntin and Barnstaple Railroad. Models of rolling stock from both the above roads are planned. One Isle of Man locomotive, a 2-4-OT is completed; three cars are also completed and an L & B 2-6-2T loco under construction. I like the unusual and that is what I have. I plan to even use English type signals and buildings. Of course, I plan to use some American equipment also. Wonder if an inquiry could be published in RMC about other fans using English prototypes and equipment? Might be interesting to see the results. Wonder how many would be either ex-service or service men? . . . *J. G. Dickinson, USN, FPO New York, N. Y.*

Fact, Not Fiction

Got quite a kick out of Bart Crosby's article in February Railroad Model Craftsman entitled Fiction or Fact but personally I prefer to have no yarns about my model railroad. If you stick to one prototype there's no second guessing, no one can make any disparaging remarks about your equipment or layout. Me, I model one prototype, the B & O, and have their plans, photos or magazine articles to back me up on every individual piece of equipment . . . *Bill Small, Philadelphia, Pa.*

VINTAGE 1903!



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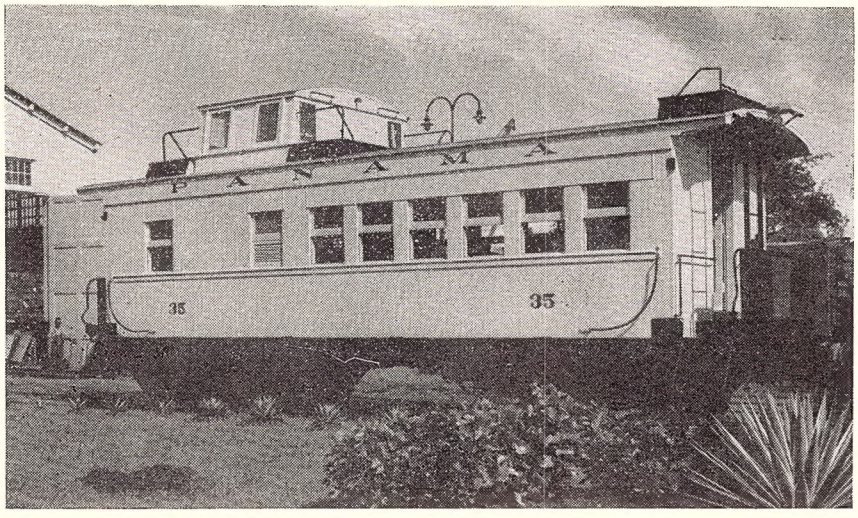


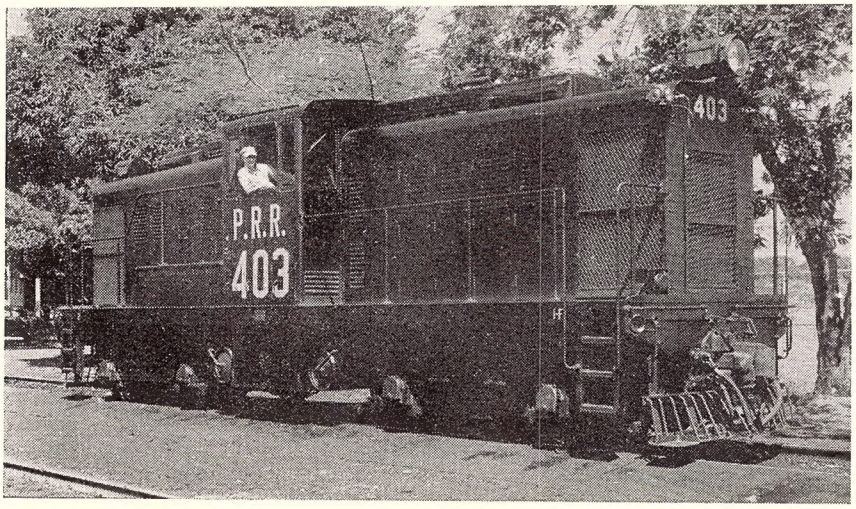
Exterior view of converted caboose. Now a combination caboose and thirty passenger car for use in freight train service.

The PANAMA RAILROAD

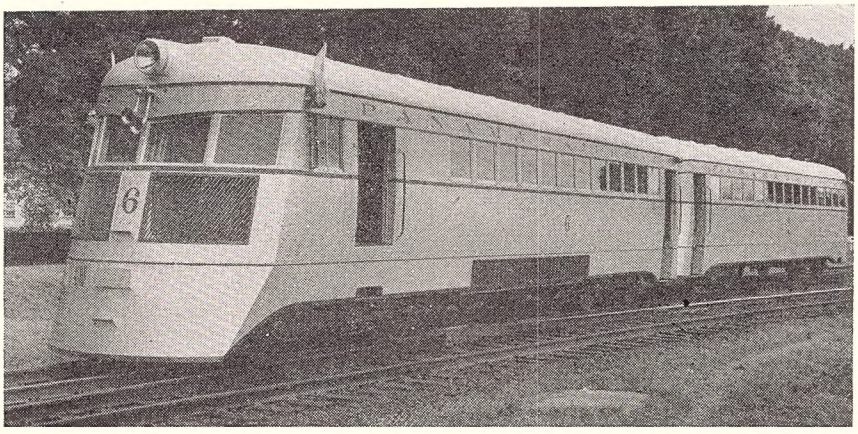
by COL. H. H. D. HEIBERG

A single track transcontinental road less than fifty miles long. U. S. equipment is used although track gauge is five feet.

THE Panama Railroad is a complete single track transcontinental railroad less than fifty miles long serving two busy sea ports. Communities along its route comprise the towns of Panama Canal employees and the various military posts. Industrial sidings and yards serve the mighty installations of the Panama Canal and the army, navy and air stations, bases and depots. Engineered to carry the heavy railway guns which form a part of the habor defenses, the roadbed is heavier than normal traffic would require. U. S. type railroad equipment is used and U. S. operating procedure is followed though the track gauge is five feet. The main line is block signalled throughout with conventional three indication semaphores. Hydropower from the Gatun and Madden Dams is transmitted on towers, spaced 18 to the mile, which straddle the right-of-way at a width to permit double track, and are so constructed that a catenary transmission may be suspended from them. Electric motive power has not been used however, and is not now contemplated.



1000 H.P., 95 ton, Diesel-Electric locomotive as used on the P.R.R.



Two Car Gasoline Powered Train with a seating capacity for one hundred passengers.

Motive Power

The principal motive power of the railroad is supplied by the trim, modern looking Mogul oil burners of two series, one each for passenger and freight service, respectively. For switching, short local runs and occasional trans-isthmian hauls there are also several diesel-electric locomotives built especially for the service. In the shops and round house stalls some older series Moguls, with their sharply tapering boilers and slope-back tenders, await a traffic emergency or a major construction project in the Canal. Completing the motive power stud are the "Scooters" headed by the new two unit gasoline powered streamliner which is used for tourist parties and on official occasions by the Governor of the Panama Canal, who is also President of the Railroad, and two gasoline powered cars which are used by other officials of the road.

Passenger Equipment

Since the climate is tropical and the scheduled transcontinental passenger run takes but an hour and 25 minutes, the standard passenger accommodations are open-end, straw seated, oil lighted, wooden day coaches built by the Mechanical Division of the Panama Canal. Under a shed in the Balboa shops languishes an ancient but gaudy observation car of the type in which Teddy Roosevelt was pictured grinning at the workers while on an inspection tour during the construc-

tion of the Canal. Baggage cars and occasionally, a Hospital Car of similar design to the coaches, complete the make-up of the passenger trains. A baggage car is normally placed in the center of the train to separate the first class and second class accommodations. Normal passenger trains nowadays run about seven cars. Before the completion of the trans-isthmian highway, however, trains of twelve or more cars, which had to be double headed, were not uncommon on weekends.

Freight Equipment

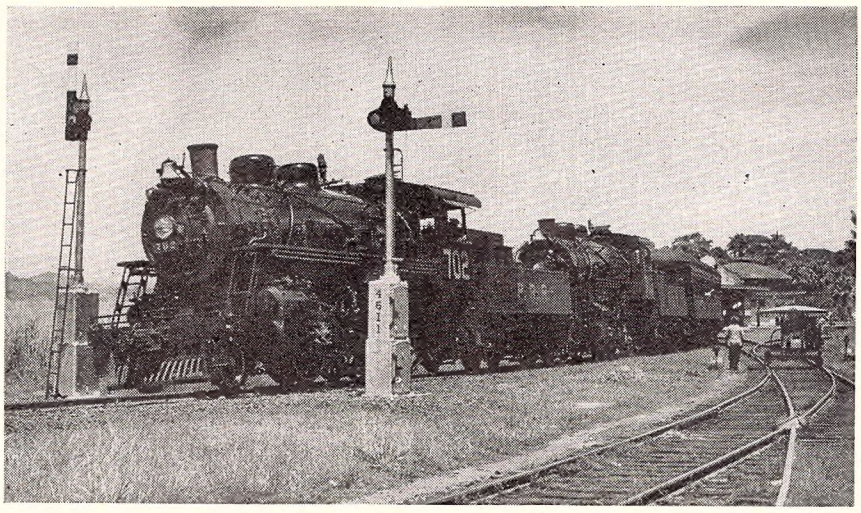
The principal freight cars of the road are conventional 40 foot wood sheathed boxes and reefers with arch bar trucks and truss rods. To these have recently been added a group of modern 50 foot steel box cars, of standard design. Conventional flats, gondolas and tankers are also used in freight service. Finishing off the freight train is a natty combination coach and caboose, complete with passenger trucks and cupola. These interesting cars were originally painted coach green and lettered in gold but are now being repainted in glossy box car red with lettering and trim, including handrails, in bright yellow.

Other equipment used in the construction of the Canal and relocation of the railroad, such as shovels, cranes and dump cars are stacked away on storage tracks awaiting a landslide or the possible major construction projects of modernizing the Canal.

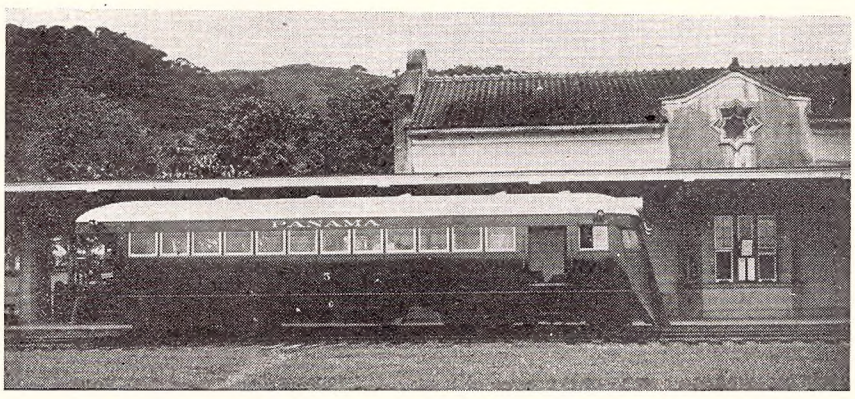
General Operations

The main line of the railroad starts with a stub terminal in Panama City, capitol of the Republic of Panama, skirts the base of Ancon Hill to the through station at Balboa Heights, capitol of the Canal Zone, then through the Balboa yards to Corozal. Thence the railroad follows the east bank of the Canal, tunnelling the outcropping of the rock strata on which Miraflores Locks and Dam are built, to the upper Pacific Locks at Pedro Miguel. The original plan had been to continue the right of way along the east bank of the Canal, through Gaillard Cut with a maximum elevation of about 100 feet, but the sides of the cut were so unstable and subject to slides that the railroad was routed away from the cut and over The Continental Divide at Summit at a maximum elevation of about 275 feet. Returning to the Canal at Gamboa the railroad skirts Gatun Lake before crossing a long arm of the Lake on a causeway broken by a small draw bridge. Swinging back to the Canal at the Atlantic Locks town of Gatun in a big "S" curve, the right of way again straightens out, parallelling the old French Canal, and then traverses the Mount Hope yards to the Atlantic stub terminal at Colon, Republic of Panama. Four passenger trains, one night freight and one mixed train are scheduled each way daily.

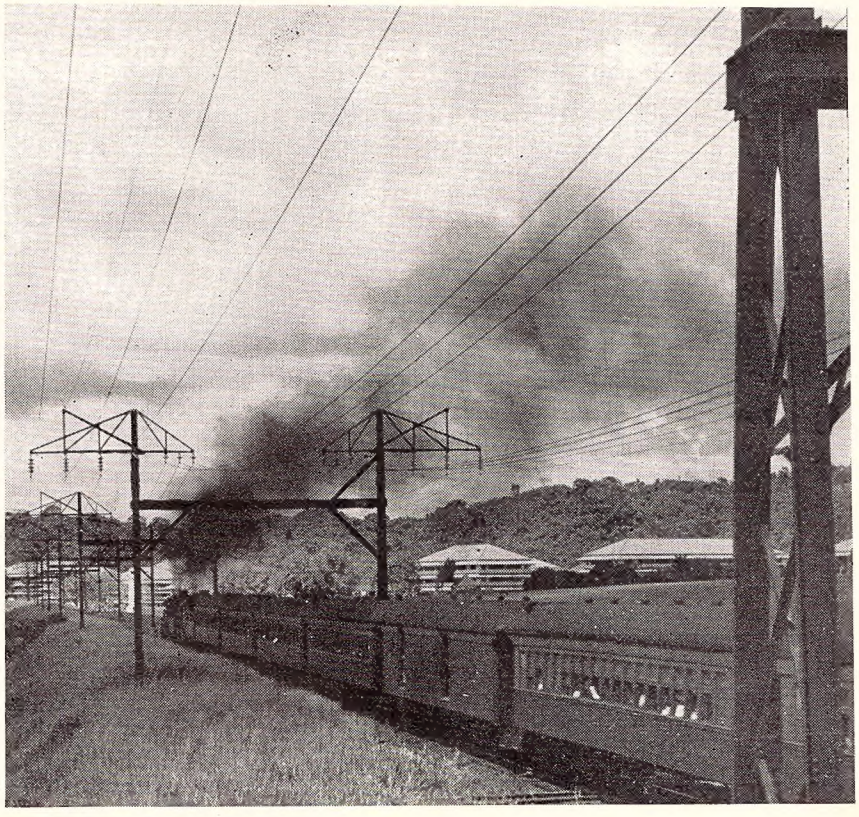
Turn page for model adaptation in O gauge of this railroad.



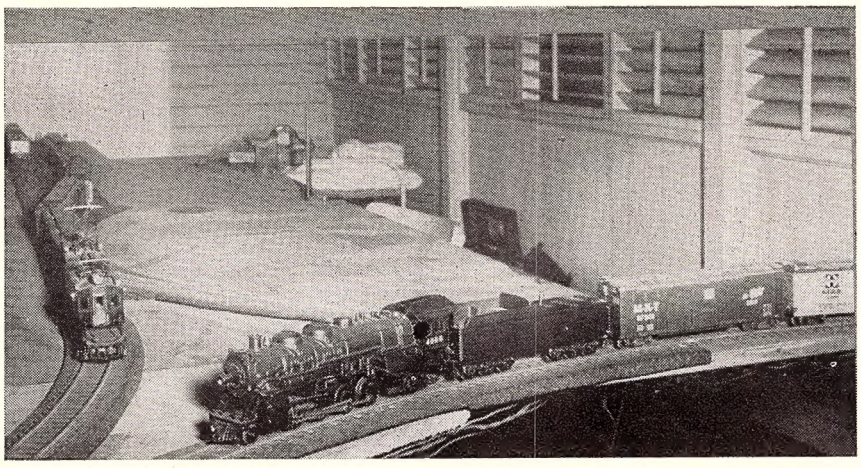
Two steam type locomotives being used on Trans-Isthmian passenger run.



Motor Car at Balboa Heights Station. This car is gasoline powered and is used by road officials.



Another double-header using steam power on a Trans-Isthmian haul. Usually this type of locomotive is used for switching and short local runs.



A freight drag waits while a string of varnish leaves "Panama Terminal" on Trans-Isthmian run. (Sante Fe 4000 Mike from Scale Craft kit and NH 4-C-C-4 Electric home built.)

FLAGSTOP: *The Panama Railroad Club*

A model adaptation of the Panama Railroad built by the author in O gauge. This layout was built on a porch overlooking the prototype.

by COL. H. H. D. HEIBERG

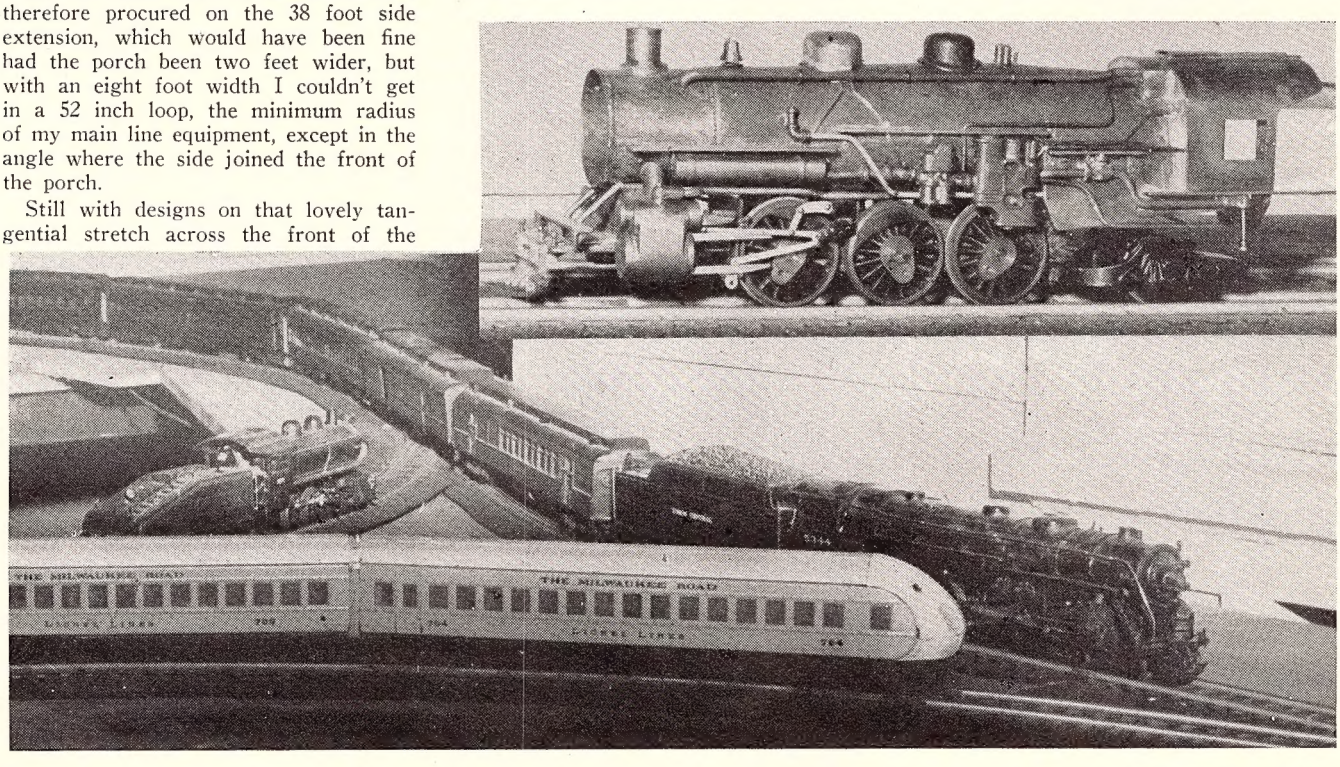
WHEN the writer was ordered to the Canal Zone for duty, the chronic problem of a new layout for the O Gauge, Union Central Railroad raised its ugly head. I cast covetous eyes at the upstairs screened porch which spanned the front of the house assigned us, to a length of 57 feet and ran an additional 30 and 38 feet down each side respectively. Porches are vital adjuncts to living in the tropics and as all the bed rooms opened on to this one, I could not negotiate the unrestricted right to clutter it up with track work. Initial license was therefore procured on the 38 foot side extension, which would have been fine had the porch been two feet wider, but with an eight foot width I couldn't get in a 52 inch loop, the minimum radius of my main line equipment, except in the angle where the side joined the front of the porch.

Still with designs on that lovely tangential stretch across the front of the house, I turned next to the Panama Railroad for an inspiration on the layout plan. From its vantage point high on the face of Ancon Hill, this upstairs porch commands a panorama of most of the Pacific terminus of the Panama Railroad and around this the layout was planned. From the throat of the Panama City terminal I added a loop, hidden behind Ancon and Sosa hills and tying in to the southern spur in the dock area. This loop, of necessity, was located at the angle of the porch, and the Panama stub terminal extended down the inner wall of the side porch. This was the first stage of the layout. Right of way was later secured for an uncluttered, narrow track shelf the length of the front porch railing, terminating in a return loop at the opposite porch angle. This would give me the prototype run from Panama City through Balboa to the Corozal station and passing siding, which was to be the return loop for my layout.

Unable to place the Balboa yards on a narrow, uncluttered shelf on the front porch, which was where their prototype location would have placed them, it was decided to locate the yards parallel to the Panama terminal on a shelf along the railing of the side porch.

Track work, though a patchwork collection of bits and pieces that came up intact from previous layouts, some with roofing paper ballast and some with no ballast, and fresh laid or relaid pre-war steel rail on fiber tie strips, is nevertheless serviceable and derailments are few. All track is laid on ¼" plywood or prestwood boards which in turn are mounted on salvage army mess tables and on shelves constructed from what 1 x 6" and 1 x 10" lumber I was able to save from the fury of the native demolition crew that uncrated our household goods upon arrival here.

(*Continued on page* 33)



Top photo shows a Pacific locomotive under construction in the Union Central Shops (modified from a Scale Craft kit). Below, the Panama Express entering the Panama Terminal while the Hiawatha is waiting to back into the station preparatory to starting it run. The switcher standing on wye will break up the express when unloaded.

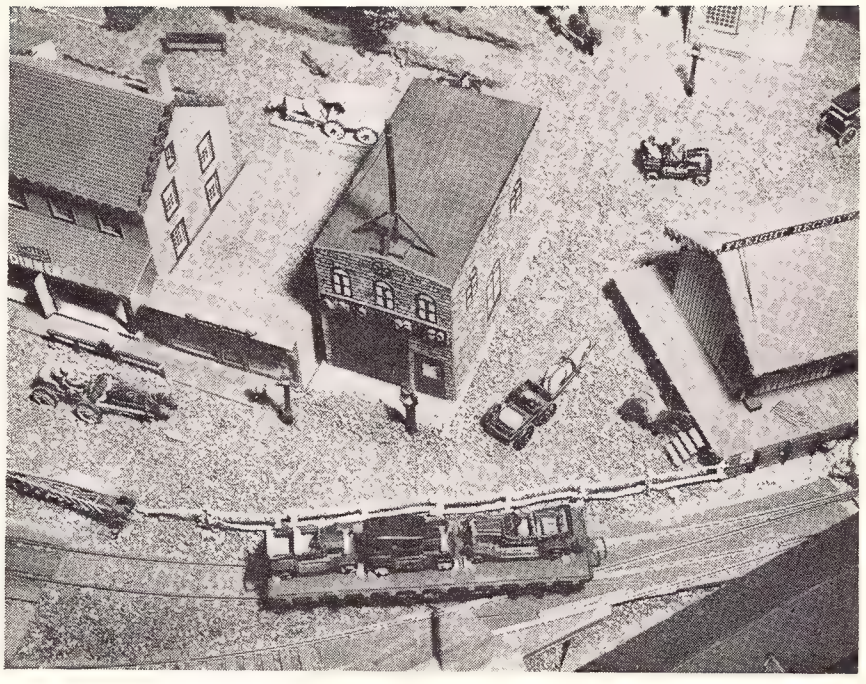
THAT Model Railroading is fun there's no denying; that it has many aspects each leading into one that seems more fascinating than the last . . . well, we'll go along with that too, one hundred percent!

Putting it mildly, there's never a dull moment. We've gone through the scenery angle in the past few months and suggestions on how to make your pike look a bit more realistic. We kinda hope they've been of some aid to you in making your model railroad more fun to build.

As a matter of fact, the guy who said "A model pike is never finished" had no idea of the profound truth he was stating.

A model railroad, however, is not complete unless it and the "whistle stops" that support it are populated, have various types of vehicles and the hundred and one little details that spell a good looking pike or just the opposite. To build a model railroad without these things, to my notion, is like having a locomotive without a boiler, or a house without a wall.

The figures and many vehicles for railroad modelers run into a wide variety of types and periods. There are olden-time



An aerial view of the New Castle and Frenchtown Railroad built by the author in HO gauge. Photo by Ed Sadowski.

ANIMATE Your Model Railroad

Through careful use of miniature figures you can make your model railroad live. They'll help create a realistic atmosphere for your rolling stock.

By BART CROSBY

accessories, modern and the ultra modern, just as there are in building kits. You're probably familiar with those on the market from constant perusal of the advertisements in RMC.

The New Castle & Frenchtown Railroad was built with a specific idea in mind and the desire to recreate a town back in the late 19th century. So when the search began for figures, wagons, old automobiles and items that definitely have an aged atmosphere about them, the writer scanned every model publication from here to Japan and that's no joke. Fortunately, I found the solution to my problem right in my own back yard.

The many articles made by the Dyna Model Products Co. filled the bill so well that they are used almost exclusively on the N C & F. In an era of wood burning locos and open end coaches, one does not expect to see ultra modern homes, nor the streamlined Packard when the period is pretty much 1890. This was definitely a horse and buggy age and believe you me boys, I made the most of it with the many figures from the aforementioned firm.

I have tried every type of figure and casting on the market and some have been well detailed and take paint easily on the first application while some have been so badly obliterated by flash that to work on it was a major operation. It will pay you to shop around for the items best suited to your needs for three definite reasons: the least flash possible on the casting; ones that will take paint on the first dab; and, naturally, price-wise.

It may be well to interject here that the purchase of some GOOD brushes, about 00 size will help immeasurably in turning out a first class paint job. Remember that you are working on really small stuff and the detail you have depends largely on how well *you* paint it. I found that *Floquil* shrinks on the metal and dries rapidly so that if you are lined up correctly, you can make a mass production job of your figures yet turn out creditably jobs.

On the painting of wheels, I've found out that if they can be taken from the axle (as most of the cars, etc., can) and slipped on a fat tooth pick so that the fit is snug, you can dip your brush in paint and, with a single twist of the tooth pick between your fingers, you'll have the rim or the entire wheel painted in no time—zip—just like that. A four inch square of modeling clay on the many holed base that contains your small files will hold the tooth picks while the wheels dry.

The majority of model figures have small square bases or, in the event they do not, the same idea can be applied. Get a stick about 1" wide, about 15" long and about ½" thick. Cement to this the figures you plan to paint, keeping a reasonable space between each one to allow for a fair amount of brush movement. If you have a fairly good idea of just what color you want your figures painted, you can whisk through several dozen in an evening since you are probably using a fast drying paint. The facial expressions are usually cast in the model and the Floquil Flesh paint, as far as this boy is concerned, is TOPS!

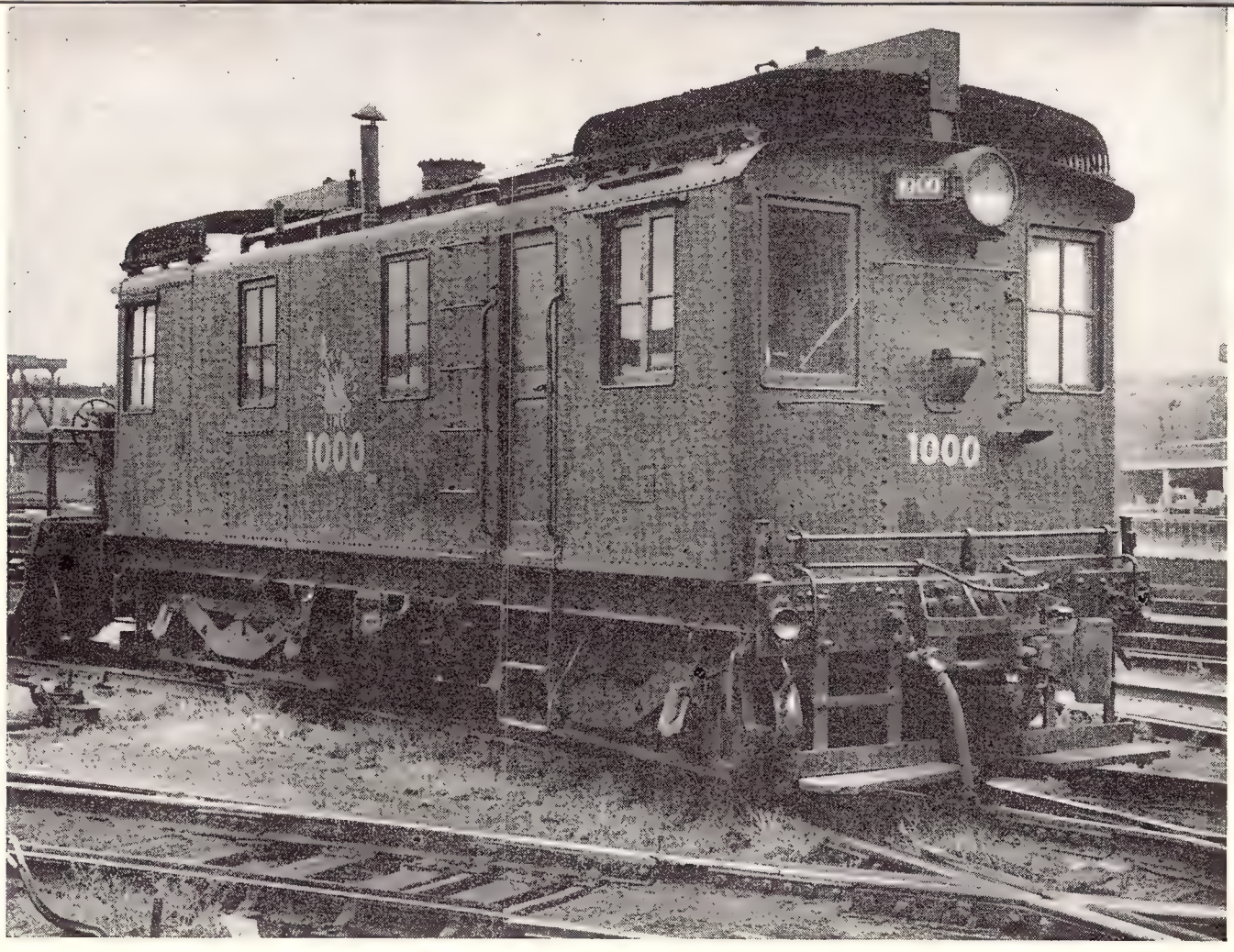
There is, however, *no substitute for time* and making your figures and wagons requires the same patience and care as you would place on your prize car or locomotive.

In subsequent issues I hope to take you through some of the many figures made by Dyna-Models and just how they have worked on my model railroad.

Of course I'd feel swell if some enterprising manufacturer would make up a cigar store Indian, a big fat policeman with bobber hat and wide belt and the feminine section with leg'o mutton sleeves and fantastic hats, etc. But that's like asking for egg in your beer—you darn seldom get it! So in the people department, I have to be satisfied with those that can be painted to look like the era in which I model, and paint will transform anything.

We also hope to tell you about different types of automobiles and what you can do to give them an extra fillip that makes the visitor say "Oh Boy—that's pretty neat"—and the ladies exclaim "How Cute!"

Let's resolve then to make our figures LIVE and do a bang up job on any casting we buy. This is the acid test, for these tiny figures bear more scrutiny than you ever imagined.



C.R.R. Of N.J.—FIRST DIESEL

The Daddy of all Diesel Electrics, in continuous service for 24 years on the Central Railroad of New Jersey (photo above). Here the author, an ardent modeler and an employee of the JC, describes construction of his O gauge model.

by WARREN B. CRATER

THE Jersey Central's 1000 was the first Diesel Electric locomotive to be placed in railroad service. Now, twenty four years later, it still serves the Bronx Terminal (as described in the Febraury 1950 Craftsman). This little fellow actually is the daddy of the present day fleet of diesels. Its age in continuous service and its present condition is a good start to answer the question of life expectancy of this type of power.

I am building an O gauge model of this first diesel electric, writing and sketching as the work progresses. The railroad modeler with limited space and sharp curves need not be afraid of this locomotive as it can negotiate as sharp a curve as a short hopper car. And, after all, the prototype gets through some *very* tight curves and switches.

Construction of the model begins with the frame as with any other locomotive. This frame, however, is quite like the tender frames for steam type locomotives. For an O gauge model, the side frames are ¼" x ¼" brass 7" long and the breast beams are ¼" x 5/16" brass, 2½" long. The bolster for the trailer truck is ¼" x 5/16" brass 1 7/8" long. Cut all these parts to shape and file square. Round off front corners of breast beams and make poling pockets by starting a #12 drill until it cuts just to its full diameter. File the top part of the coupler pocket out and drill the holes for foot board brackets in faces of breast beams. Size to tap for your smallest machine screws, preferably #00-90.

Lay these parts in place and tack securely, upside down, on a flat board. Be sure they are square and solder, leaving large fillets for extra strength. The coupler pockets could be the cast variety ordinarily used on freight cars, if you wish. I built mine up as shown in the sketch. Prototype photos are a big help with such details.

If a K & D or other similarly large motor is to be used, file slots in the side frames to permit removal of motor truck for maintenance. These should be away from actual position of truck and toward the middle of frame as indicated in the sketch.

Photos by A. Q. VOGEL

Select your material for cab sides and ends, preferably half hard brass about 1/32" thick. Cut two strips of 1/16" x ¼" brass to a length of 7" less the thickness of cab ends. Screw to top of side frames, screws through side frames and tapped into the strips. Locate so that the outside of cab ends will be even with inside or back of breast beams and the cab sides are even with ends of breast beams. These will form a cab base and the whole cab can be removed from the frame for maintenance. File slots in these if necessary for removing motor.

Lay out cab ends and sides on the sheet material. Sides can be made in two sections, leaving the doorway open. Cut out all window openings and drill all holes before assembling. Both sides are the same, that is, cab doors are behind the engineer's position and not opposite each other. Note also the window spacing. These details are shown in the drawing for the near side only. Hand rails at sides of doors are #66 brass drill rod and the grab irons, which make up the ladder beside the door, are those used on freight cars, shortened.

Hold cab ends in place, bottom edge to frame and back to ends of cab base strips, and solder to the ends of strips. Solder cab sides to strips and to ends.

Lay out cab doors and cut slightly over width. Cut out window opening, then solder inside door openings in cab sides. Holding drill in pin vise, drill through solder and/or door for grab irons. Insert grab irons; cut strips of cardboard, about 1/32" thick, and insert between sheet and grab irons as a spacer. Solder protruding ends to inside of cab sheets, clip off excess and file nearly even with inside of sheets. Leave a little solder, don't file clean. This will permit installing windows later. After all soldering is finished the cardboard spacers may be cut with a razor blade and removed.

Construction of Roof

The roof should be soft brass sheet. Half hard brass can be annealed by holding over flame until red and allowed to cool. Lay out and drill all holes, measuring all dimensions from the center lines. Sides of hatch are to be bent up from material in the hatch opening. Next bend the edges of roof down to meet the sides and trim off the excess so it fits snugly to the ends. Solder from the inside. Since this will be a butt joint it will be well to lap it on the inside, between windows with strips of brass or tin plate about ¼" wide and allow the solder to flow around and under these.

Cut the ends of hatch from same material and solder in place. Next comes the hatch cover, this can be any scrap of thin brass or tin plate. Drill the holes as indicated, then solder in place from the inside. Be sure it is centered on the hatch way with 1/16" extending over each side and end. There is still another hatch atop this. It may be represented by a piece of brass 1/16" x ½" x 1⅞". Drill and tap as shown in sketch labeled Top Hatch. Fasten to hatch cover with #2-56 Round Head screws from inside. Cut and file screws flush.

The exhaust stacks are attached to the main hatch cover in the same way. They are a simple turning and boring job. Use dimensions as shown in the sketch.

The center manifolds are cut from 3/16" x ½" brass. Drill and tap as shown and secure to ends of roof with #2-56 round head screws from inside. The side manifolds are made from ⅛" outside diameter brass tube. File off the top half leaving a half round bottom. Drill and tap for #1-72 screws as shown and fasten to roof with round head screws from inside. File excess of the screws flush with inside of these half rounds. The radiator pipes are made from #60 brass drill rod. Make a wooden form to lay on the roof between the manifolds. Bend the individual rods so ends go to center of side manifolds and solder, allowing solder to fill the half round up flush.

In addition to these water radiators there are oil cooling coils at sides of the hatch. On the bell side there is a long coil of small pipe and on the whistle side there is a large pipe with a single return bend. First make the brackets as shown in the sketches and attach to the roof with screws from inside. Bend the coils as shown and solder to tops of brackets.

The bell and bracket is of the type used in top of boiler mounting on steam locomotives. The whistle and smoke jack are shown in the sketches.

Headlight brackets can be bent from thin sheet and soldered. Secure to cab fronts with small machine screws. Fasten headlights to brackets with screws tapped into bottom of headlight castings. Headlights have their number stencils protruding at an angle; see photos. These are available from several model manufacturers.

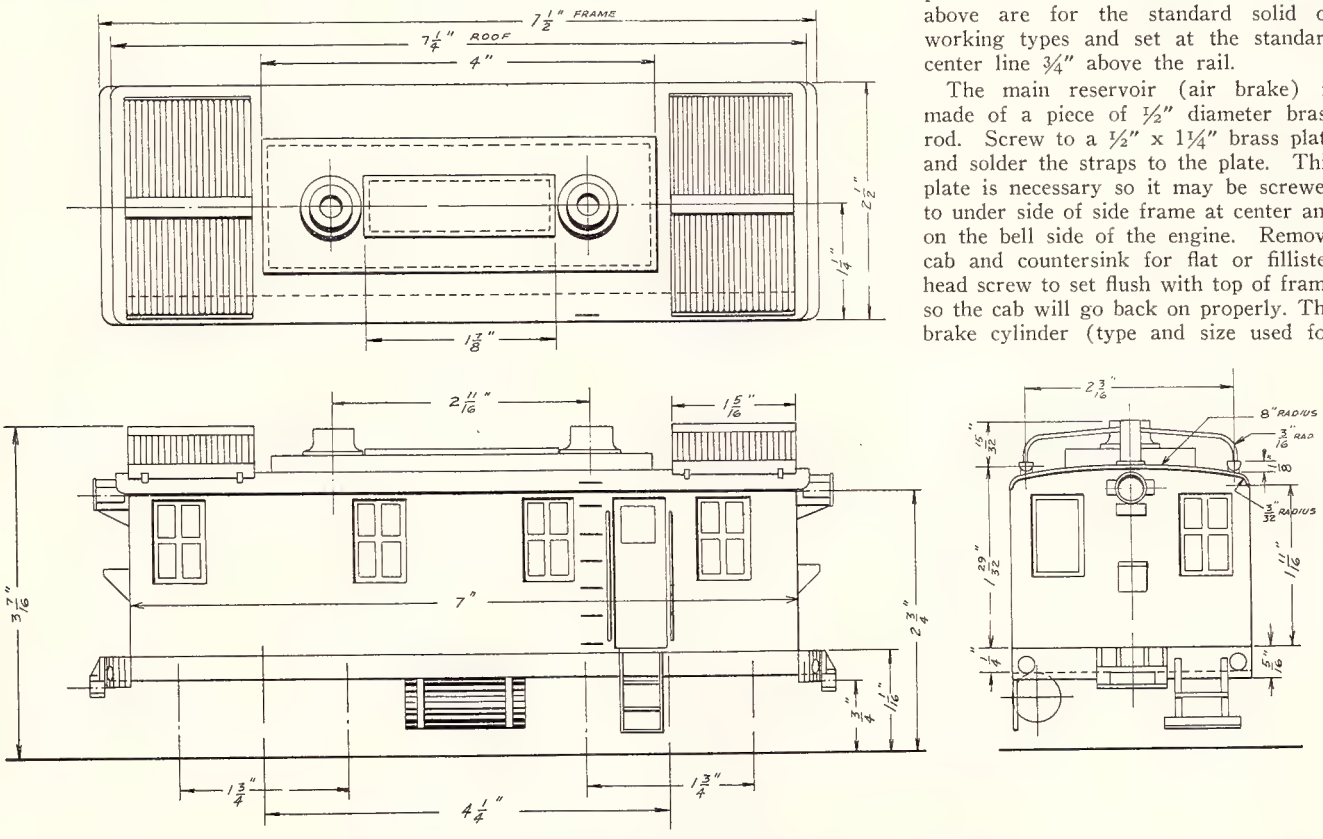
The three step ladders under the doors may be bent up from 1/16" wide strip and soldered. Also solder to bottom of cab. Do not solder to frame. The cab may be removed from frame at any time to permit maintenance.

The yard engine foot boards are not as hard to build as a road engine pilot. Bend the brackets from 1/32" x 3/32" brass. Lay out and drill holes after bending and screw to breast beams. They should clear the rail by 3/16". The boards and risers may be made in one piece and bent up. Solder them to brackets. That one ladder rung of #60 brass drill rod may also be soldered to the brackets half way from foot board to top of breast beam.

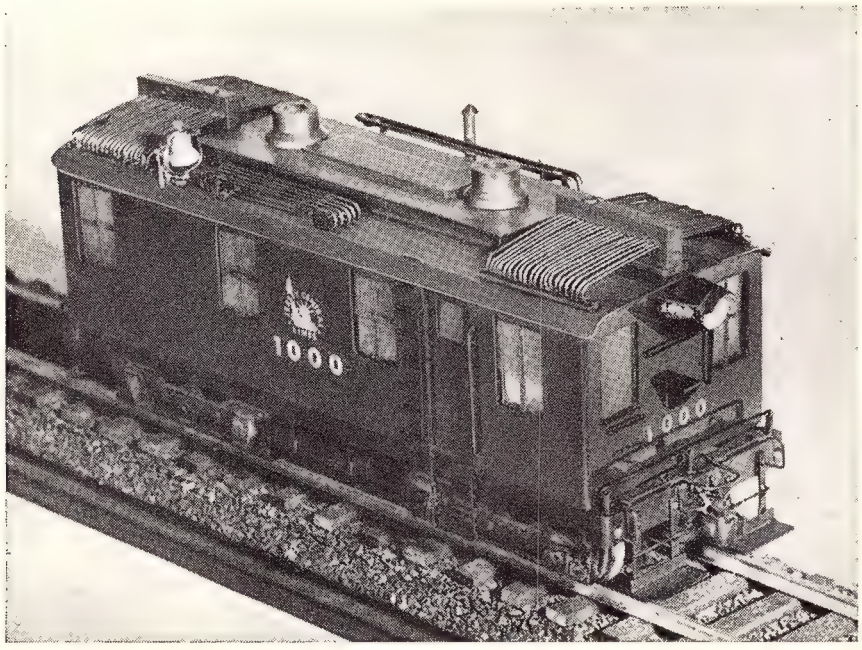
That object below the head light is a chute for loading sand. Yes, diesels need sand just as their steam predecessors do. They may be filed from ¼" square brass, drilled and tapped and screwed from inside the cab. File the screw off flush after installing.

Couplers of whatever type you prefer, may be used. However, the coupler pockets and their dimensions as given above are for the standard solid or working types and set at the standard center line ¾" above the rail.

The main reservoir (air brake) is made of a piece of ½" diameter brass rod. Screw to a ½" x 1¼" brass plate and solder the straps to the plate. This plate is necessary so it may be screwed to under side of side frame at center and on the bell side of the engine. Remove cab and countersink for flat or fillister head screw to set flush with top of frame so the cab will go back on properly. The brake cylinder (type and size used for



PLANS ARE SHOWN HALF SIZE FOR O GAUGE



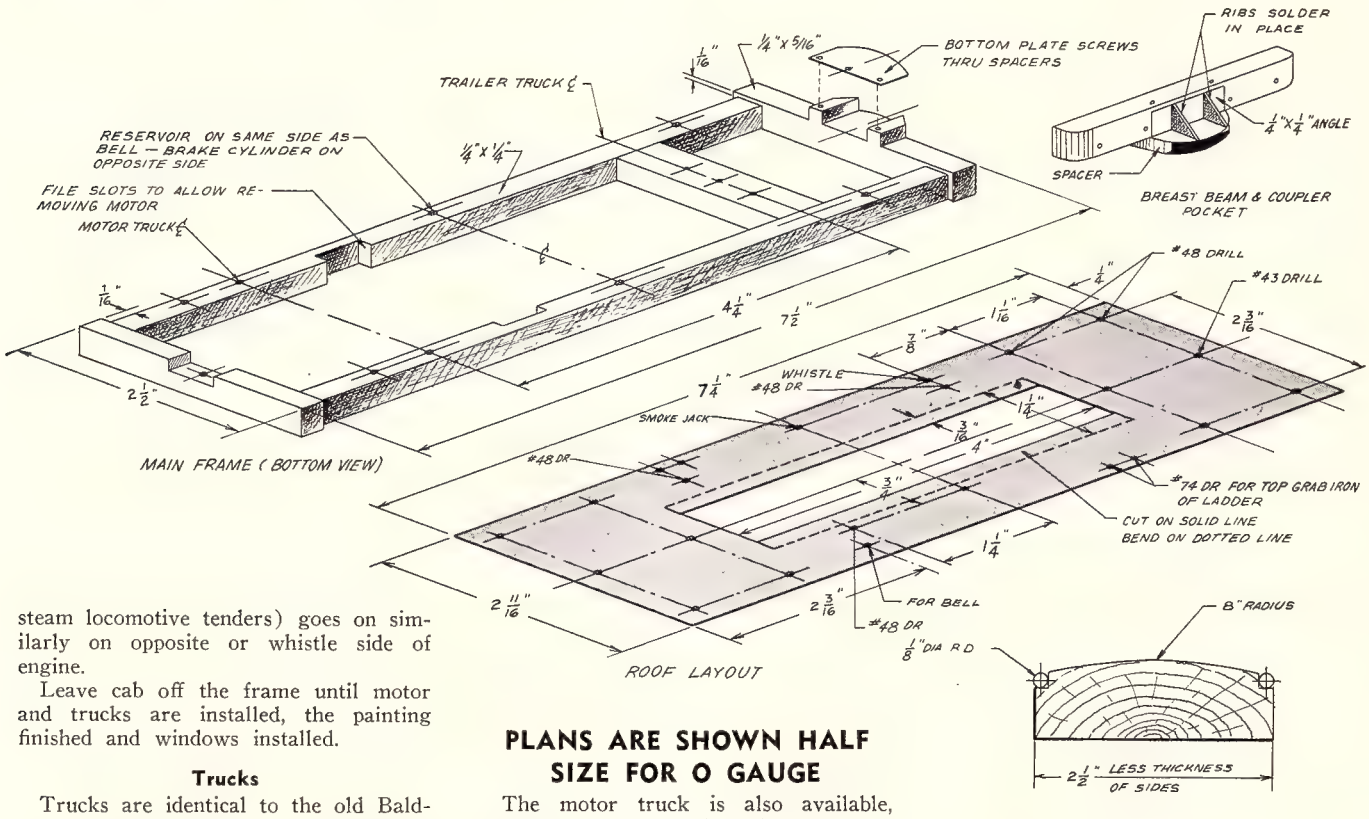
The author's O gauge model built up by the methods and with the materials outlined in this article. This Diesel Electric joins more than twenty other O gauge locomotives on the authors pike.

steam locomotive tenders) goes on similarly on opposite or whistle side of engine.

Leave cab off the frame until motor and trucks are installed, the painting finished and windows installed.

Trucks

Trucks are identical to the old Baldwin Tender trucks. I am using side frame castings from my own pattern but am in no position to supply them. The standard 4 wheel Pullman truck, which may be had from several model firms, is of proper type. The part of casting which represents eliptic and coil springs will have to be removed. Many of these come with 2" wheel centers. This should present no difficulty as there is room for the additional length. The trailer truck may be used as is, using bolster plate (center plate) to make the frame the proper height above rail.



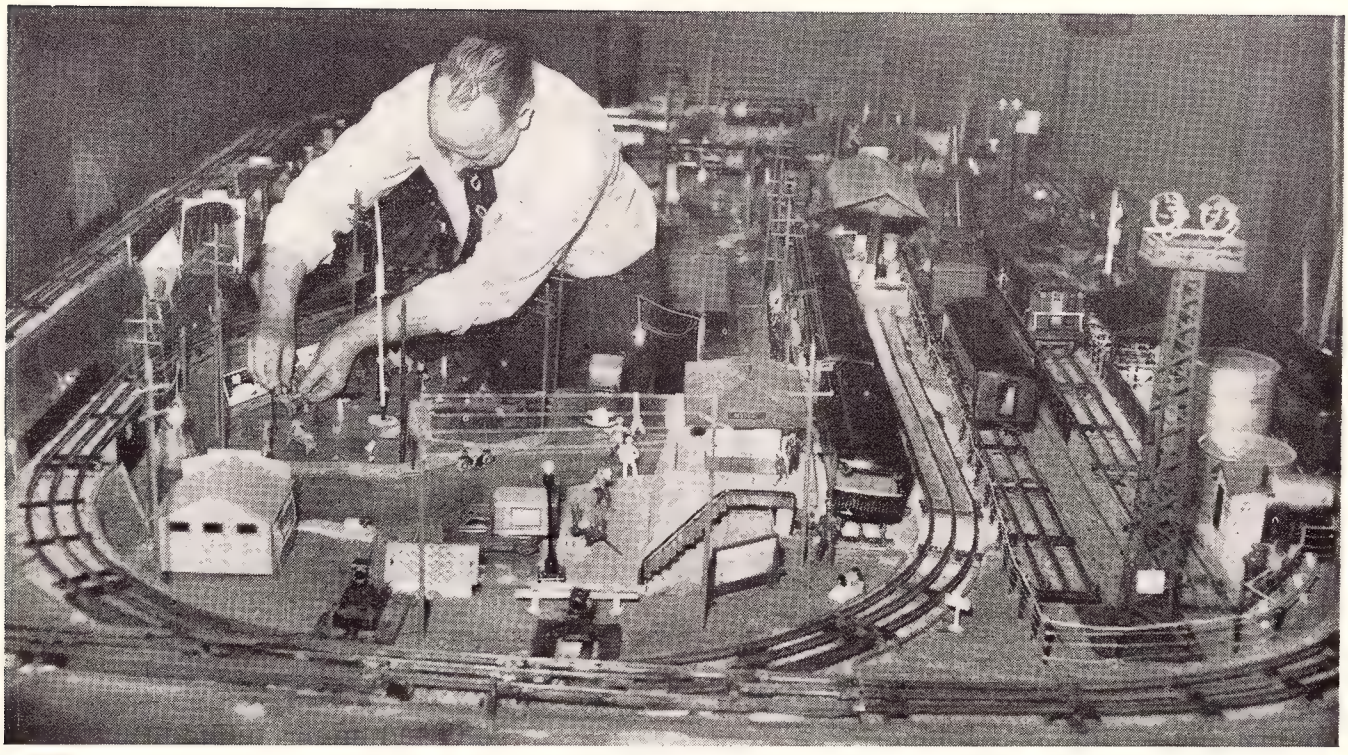
PLANS ARE SHOWN HALF SIZE FOR O GAUGE

The motor truck is also available, ready to run. I built mine up from readily available materials and will describe and sketch it for you. It is built on a 2½" piece of ½" x 1" brass channel. The sketch shows the arrangement of my motor drive. If the 2" side frame is to be used, adjust dimensions accordingly. Where catalog numbers are given, these apply to Boston Gear Works products. Worm gears are mounted on driving axles and a worm shaft is run in bearing blocks which are screwed to top of channel. Numbers Q S H and Q 1319 give a reduction of 7½ to 1. Spur gear #G 137 on the worm shaft and #G 143 on the motor give a 2 to 1 reduction or 15 to 1 in all. With ¾" driving wheels a scale speed of about 30 M.P.H. will result from running on proper voltage. I am using and recommend the #12 FAMOCO motor. When making the bearing blocks and motor bracket be sure to provide a nice meshing of the gears. Pin worms to the shaft after installing in bearings and with the A O 1 thrust bearings in place. Worms should turn against the thrust bearing and thrust bearing against bearing block to give a nice ball bearing to the end thrust of the worm shaft.

Body Bolster

Provide a bolster of 1/16" x ⅜" brass to ride on top of channel and screw loosely to its center. This should be screwed to under side of main frame side sills. Provide with proper shims to allow proper height above rail. Motor truck should be removable by unscrewing bolster from main frame. Bend brackets, and screw to holes at top corners of channel, to which the truck side frames may be soldered in their proper position. Note that side frames are dummies and do not have any axle bearings. Collector shoe mountings may be held with these same screws.

Construction method will be concluded next month together with additional detail sketches and photo of underbody.



Charles Nicholls placing a miniature figure on a park bench. At the right are the railroad yards and signal tower which lights up. To judge size of equipment, telephone poles are to ¼" scale.

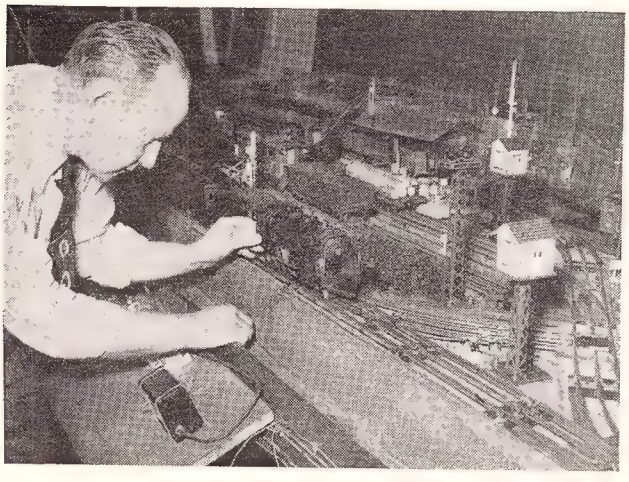
A Standard Gauge Layout

Most equipment on this layout is vintage 1920, produced during the most elaborate era in Tinplate.

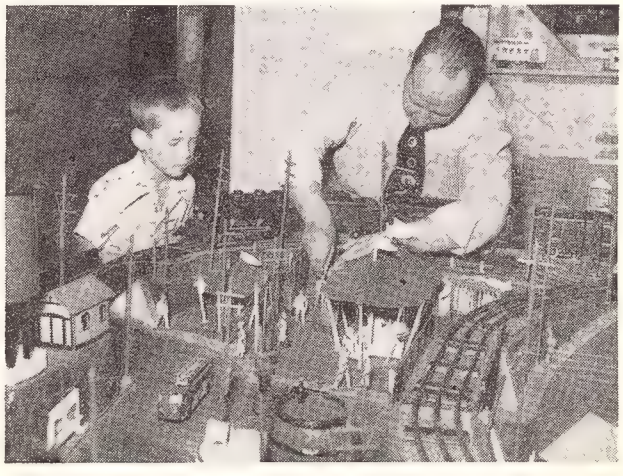
By BILL WILLMORE

ROLLING stock and motive power on this Standard Gauge pike is a minimum of twenty years old, one locomotive dating back to 1905. This equipment, acquired over the years by Charles Nicholls of Rockford, Illinois, will bring back many pleasant memories to the older readers; it is of the elaborate era in Tinplate History when coaches had doors that opened, detailed interiors and all pieces soldered throughout. Mr. Nicholls had some of this equipment as a boy, some models were found in dusty attics while others were acquired through trades. Today many of these models are scarce and are considered to be rare collectors items. The models themselves, of course, are far from scale. One caboose in particular is as large as a heavy freight engine, a scale model would be half the size.

This layout is a family project with all members actively participating. It is set up in the Nicholls basement on a large table with operating space in the center. Most of the accessory equipment, such as structures, are relatively new. Some were built up from scrap materials (coffee can-oil tanks and water towers), others are renovated old toys. As a sideline, Mr. Nicholls collects old toys which line the walls of his basement.



The oldest locomotive on the layout. Switches and signal lights are operated from panel (lower left) or manually. Note track arrangement and towers.



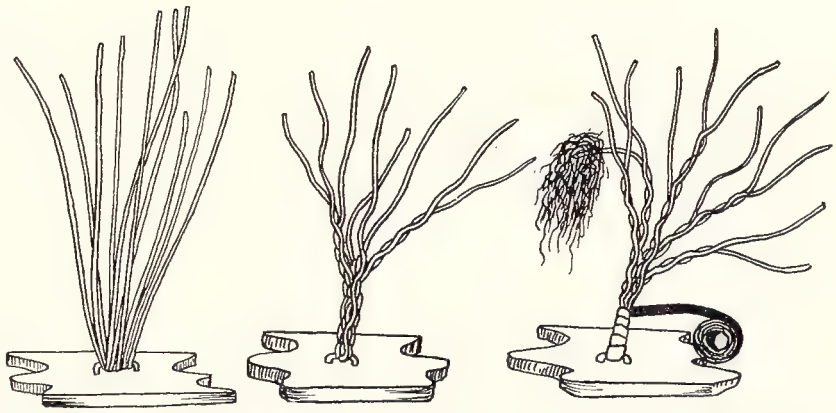
Making repairs on the two ring circus and side-show in the outskirts of Centerville, a miniature city typical of many standard gauge layouts.

Scenic Railroad Building part IV

MODELING TREES

Economical scenery devices that can be built up from common household materials.

by SHERMAN DANCE



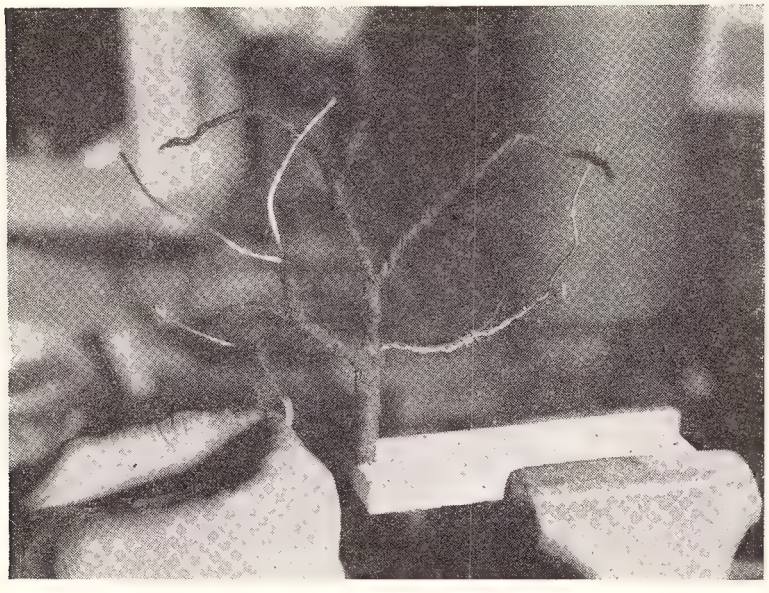
These drawings illustrate method of making willow trees from wire. This same idea may be applied to other trees of any type by altering the lengths of wire and applying sufficient foliage which is characteristic of the tree being modeled. It may be necessary to bend limbs to effect tree shape.

MOST model railroad layouts are frequently without sufficient "natural growth" to give the completed pike that realistic appearance. It may be that some builders remember the poem of Joyce Kilmore, especially the lines "Only God can make a tree." It is not our purpose, in this article, to discuss who can make a tree, but rather to discuss and describe means of making trees for the model railroad. And *you* too can do it.

Nearly every model shop stocks some of various manufactured miniature trees in both shade and fruit types. They have been treated, hand painted, etc., and are beautiful miniatures. However, if you want variety, there is no reason why an amateur modeler of railroads cannot do a good job from the natural growth plants within his vicinity. In almost every area there are all types of "plain weeds" which, when worked over just a little, will be made into very fine trees and shrubs.

Trees and shrubs can be made from a number of different types of materials and we will first discuss the merits and method of tree making from natural growth. The writer suggests a trip into the country, and if he goes by automobile to the area, he should certainly *walk* along the roads and fields in search of plant life. To seek plants from the moving auto is next to impossible. The time of year to gather plants is important. The writer has found by experience that late summer or early fall is an ideal time; plants have achieved full growth and have attained all leaves, foilage, etc., that is a part of the plant. Too, they retain sufficient "life" so they may be gathered without undo breakage or loss of unnecessary foliage.

What shall the modeler look for? All "weeds" do have names and although they may be named in this article, the modeler still wouldn't know what to look for unless he was a true student of botany. Thus, the modeler of trees should look for "tree types." That is to say, look for weeds that have general shapes or contours of real trees; weeds that have plenty of foilage. Remember that your miniature trees will need a lot of growth. Goldenrod, for example, makes a good "fill-in" tree which can be further modeled by cementing on more *goldenrod branches,* converting it into almost any type of tree. Then too, there is the sumac. The dark brown bloom or cluster which appears on this plant late in fall is an ideal form for modeling fruit trees. The small and natural ball shapes of the cluster will make wonderful fruit trees; paint some a bright yellow, orange or red and you have an apple tree with heavy trunk and the general twist that is so characteristic. So, we repeat, gather all kinds of weeds and if it is a "stem" type, get all the stem you can, it will make for easier handling.



The nucleus of a fruit tree. The wire form is held firmly in position and common friction tape is wrapped around trunk and main branches to give necessary thickness. Note that the limbs are of varying size and shape as in the real tree. Sponge will now be added to this form followed by a layer of dyed sawdust.

Preparation of Weeds

The preparation of the weeds into permanent miniature trees is not difficult. The writer has tried a number of different ways and has settled upon one method which is not only quick, but equally satisfactory. I have found that it can be done with less, but prefer to have two quarts of prepared paint on hand. Obtain a quart or two of a good "foliage" green paint—Do Not Stir or Shake It. Rather, pour off all *oil* from the unstirred can or paint. If the oil is allowed to remain, your trees will have a gloss or shine to them. The can will now contain only heavy pigment. To this pigment, add sufficient turpentine (kerosene or naptha will also do) so the mixture is a bit thicker than water or as thin as a very cheap, low grade milk. Pour the paint into any container as a basin, etc., and dip your model tree into it. You might like to take a spoon and pour the paint onto the weed. Allow the weed to drain off the excess paint and hang them to dry. This is not, of course, the manufacturers' way of doing it, but the dried paint on the weed gives it sufficient bond

to hold it together for considerable handling without the loss of too much foliage. If, when the trees are dry, they appear glossy, there is then a need to add more kerosene to your mixture.

The preceeding step does not finish the tree, but gives the base for the final touches. At this time more branches or limbs are cemented to your tree if necessary. The limbs, branches, etc., have been paint treated before just as the trees were. Sometimes the tree trunks need to be made a bit thicker to more accurately model a certain type tree. This is easily done by wrapping narrow strips of friction tape around the trunk and tapering off a bit as you advance upward. Modeling clay purchased from your local art store can also be used for the purpose, but personally I prefer tape.

Finishing Methods

The tree is now ready for finish painting. Paint the trunks a dark brown and streak it a bit with black here and there to help round it out. On the outer clusters of foliage, touch them here and there with a bright yellow-green paint. Remember that this paint too must be without gloss. In the absence of yellow-green, take some of the green used for the initial painting to which you have added considerable yellow.

Many people do not like the natural growth miniature tree, but for those who want lots of trees, forests of them, this is the quickest and, I believe, equally as effective. The trees appearing in one of the accompanying photos are the "natural growth" type.

Other Materials

The modeler who really wants to "make" his trees, will find that real beauties can be made from such items as wire (or twigs) for the trunks, rubber sponge, natural sponges and the various grades of steel wool. They require time, but you have an advantage of modeling any type tree, even the weeping willow.

Natural twigs may be used for the trunks and branches or, if you prefer, cut five or six strands of thin wire about 12 or 14 inches long. Adjust them so that all are quite uneven, bend them in half and then twist them around a nail or staple. A staple driven into a board will hold the tree firmly and make modeling quite easy. This structure becomes the bare trunk and branches. These can be modeled into any desired shape and size. Naturally, the limbs should be of varying lengths as the real tree. Rubber sponge chunks (or better still, natural sponges, although rather expensive these days) are cemented to the limbs at desired locations. Coarse steel wool can also be used in the same manner and has the advantage of being pulled in strands to simulate the weeping willow tree. And they look very nice along little streams, ponds or brooks.

The wire, sponge or wool will create the tree form. To this we must add further foliage for the final effect. Thus, a quantity of *liquid* glue is spread well over the sponge or wool. Sprinkle a bit of dyed saw dust over the wet glue.

Careful use of trees and shrubs bring out the finer details of this O gauge layout. Note the variety of sizes and shapes.

Having the saw dust in several shades of green and yellow-green will add further color to the tree form. The wire trunks may be wrapped with friction tape or smeared with a heavy mixture of flour and water to which some glue has been added for good adherence to the wire. Again, when dry, this must be painted the customary color of the particular tree being modeled.

Stranded rope can also be used in much the same manner as the wire except in this case we take the section of rope and unravel it to create the trunk and limbs. It is rather flexible with the advantage for modeling purposed, but needs to be coated with glue several times when in the finished tree form to give it the sturdiness necessary to stand erect.

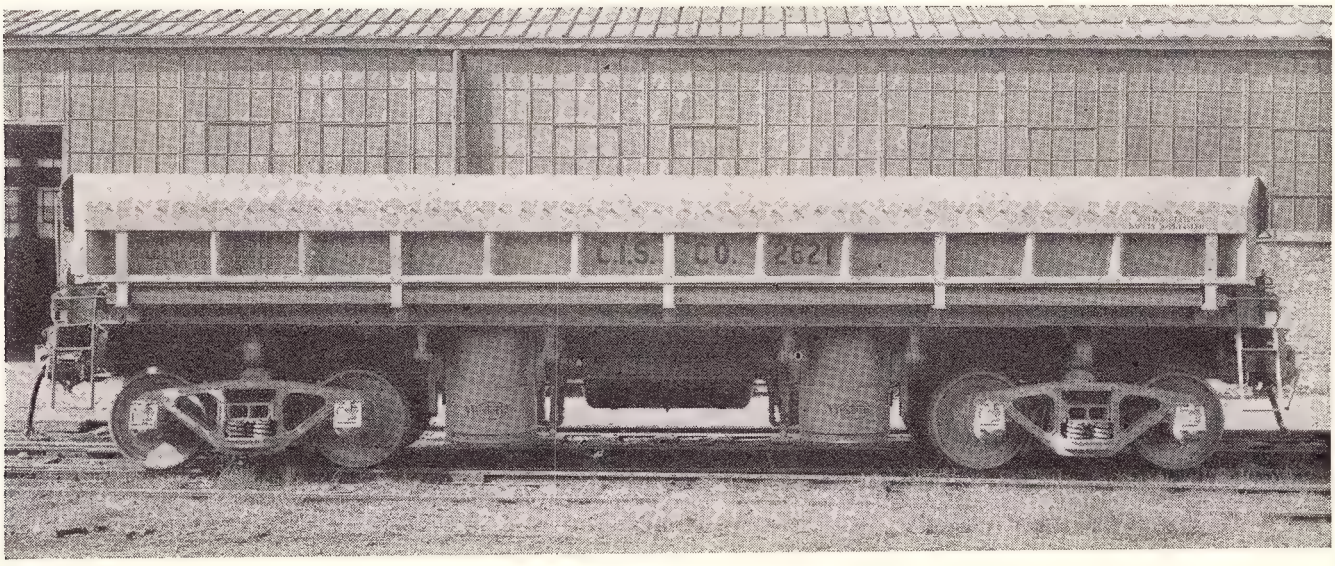
How to Plant

It may seem unnecessary to say something about "where trees grow," but if we are really after effect, it is important. In the model community, and especially if it is supposed to be an old town, trees should be rather haphazardly placed along the side walks, a few here and there on lawns equally as haphazardly placed. Don't forget too, to alter the types of trees for they have been there as nature provided them and they, in all probability, would not be equally spaced. If on the other hand your community is a more modern development, the trees along the curb would be small, carefully spaced and located with a definite plan for beauty.

In the country or open spaces, the situation is quite different yet within reason as provided by nature. The woodland or forest is thick with all types and sizes of trees—and with plenty of underbrush. A single track railroad that has cut its way through a wood section is, indeed, picturesque and realistic but seldom seen on the model layout. In open country, if not a wooded section, trees usually grow along streams, rivers and ponds. You may have noted too that they are frequently in clusters of two or more at a location. It is less common to find a single tree standing all by itself in the open; there are single trees of course, but don't overdo it. Small streams or ponds make ideal locations for a few weeping willow trees, they always add interest and color.

Farm land is spotted with trees. A few are nearly always found in the pasture land to which the cattle seek shade from the hot summer sun. That is a natural thing and effective in farm areas. Then too, along the dividing fences between one field and another the observer is almost sure to find a number of trees, they have grown there naturally. Along the fence you will also note the brush, berry bushes, etc. The underbrush, like trees, is most easily modeled from Norwegian Lichen (liken) obtainable from florists or greenhouses. Use it too for the underbrush in your forest areas.

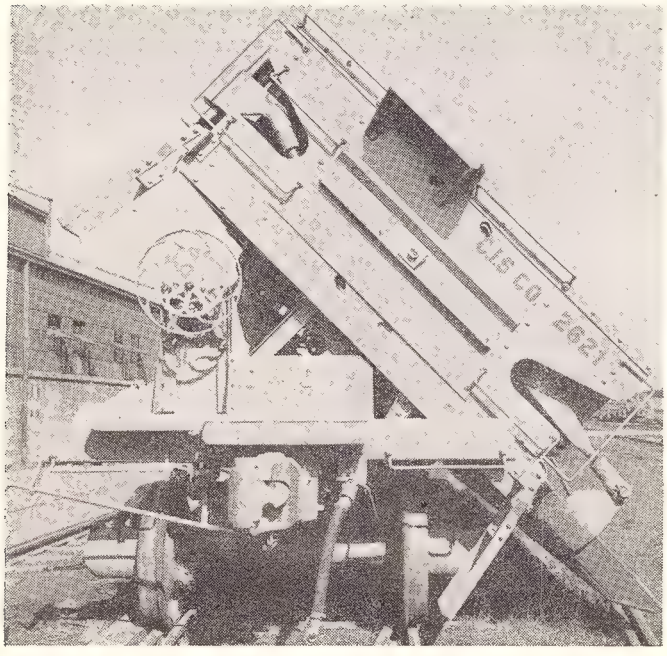
Once the modeler has realized the ease by which trees of all types can be made and the added sparkles they give to the model railroad, he will instantly add pleasure to his model railroading hours.



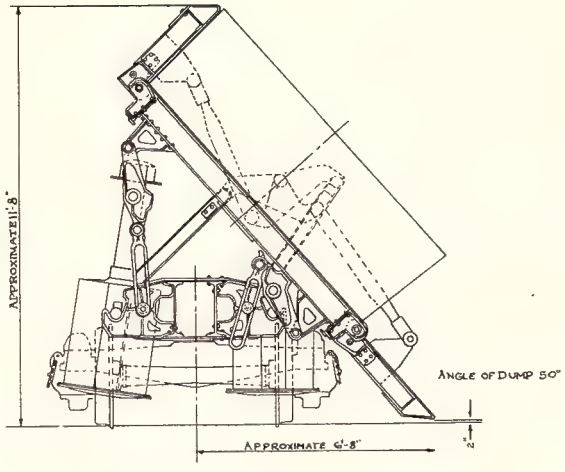
Heavy Duty Dual Side Pivot Drop Door Car

These drop door cars are designed for use in Railway Maintenance-of-way embodying shallow over-all height; fast, simple operation; small air consumption; complete protection of ballast; long life; and low upkeep.

THE prototype cars are built substantially as shown in the plans by the Austin-Western Company of Aurora, Illinois. Level full, the cars hold thirty cubic yards of material, rated capacity fifty tons. Length of body, inside at bottom is 29'9", at top 9'3"; depth inside is 2'11"; width of body, inside at bottom is 9', at top 9'3". The car weighs approximately thirty tons, angle of dump is fifty degrees from the horizontal. This car will afford the model builder unlimited detailing possibilities. We'd like to hear from any reader who builds up an operating model.

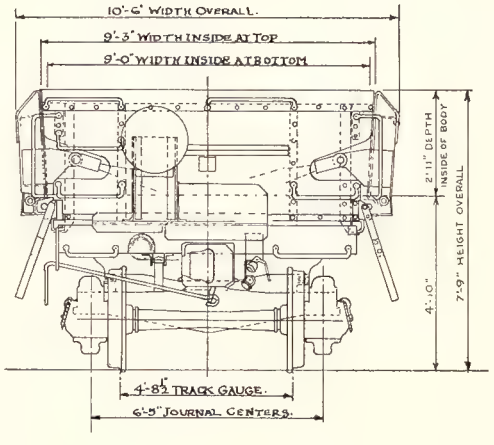


End view of car in dumping position with the body a full fifty degrees from the horizontal.

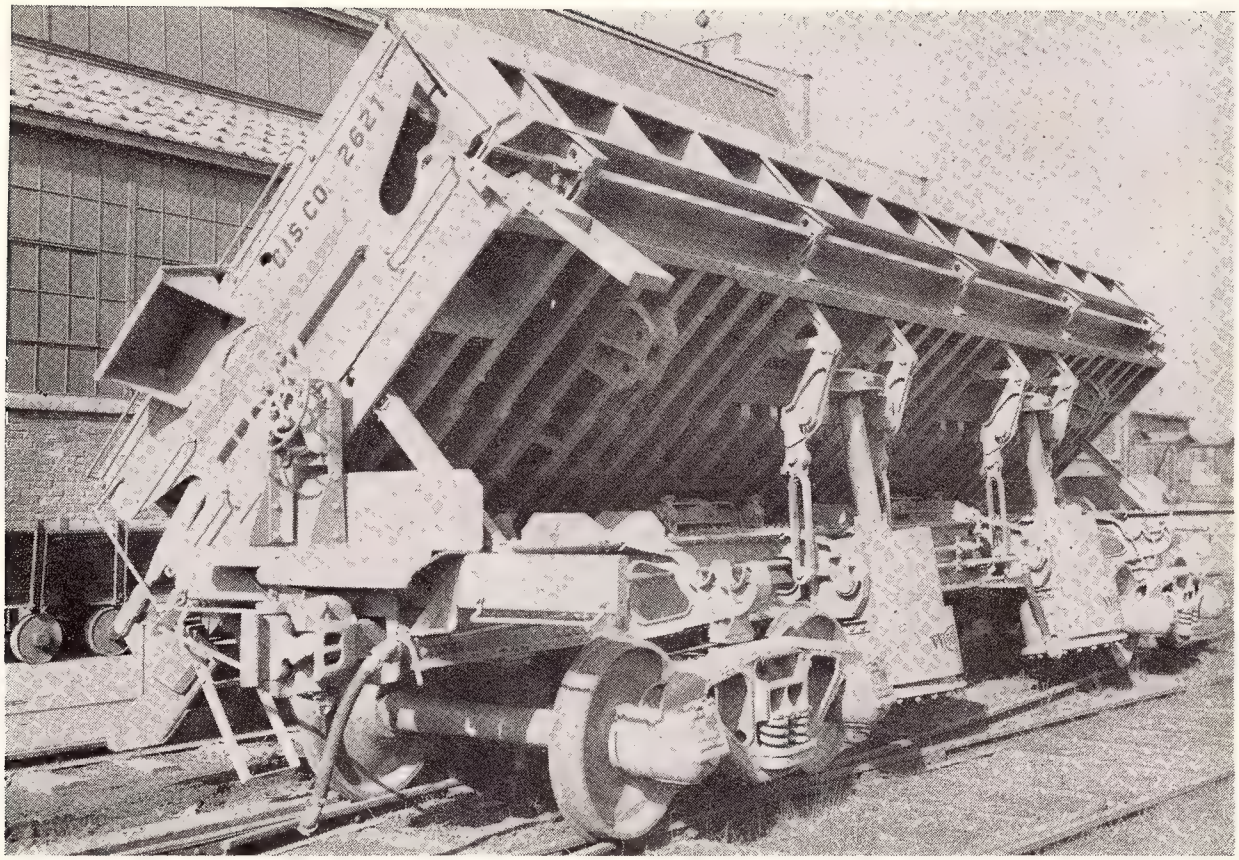


SECTION A-A

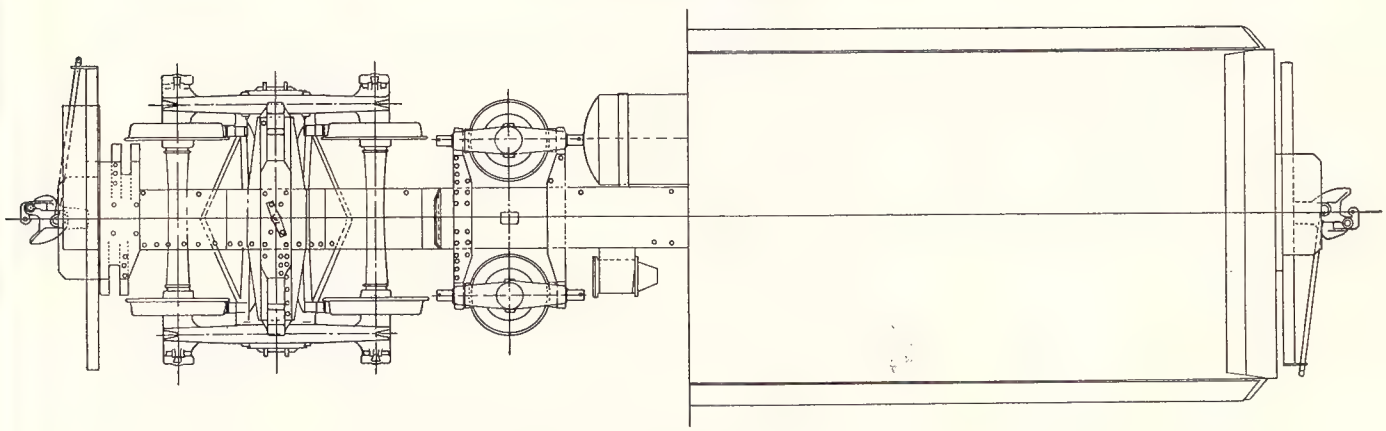
VIEW SHOWING ANGLE OF DUMP

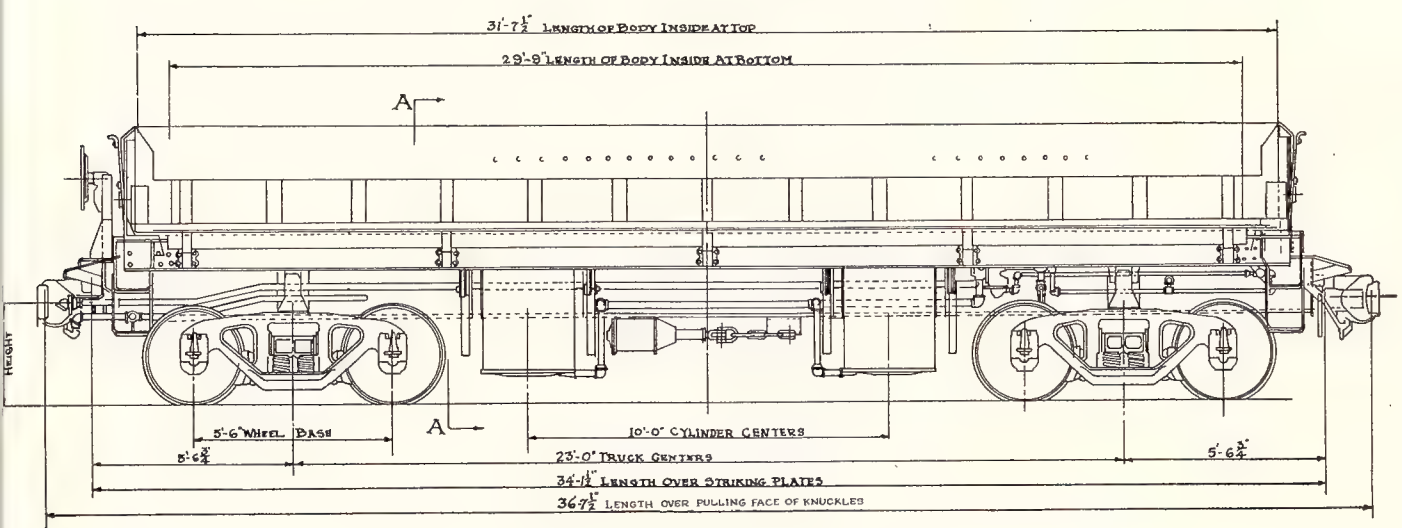


END VIEW



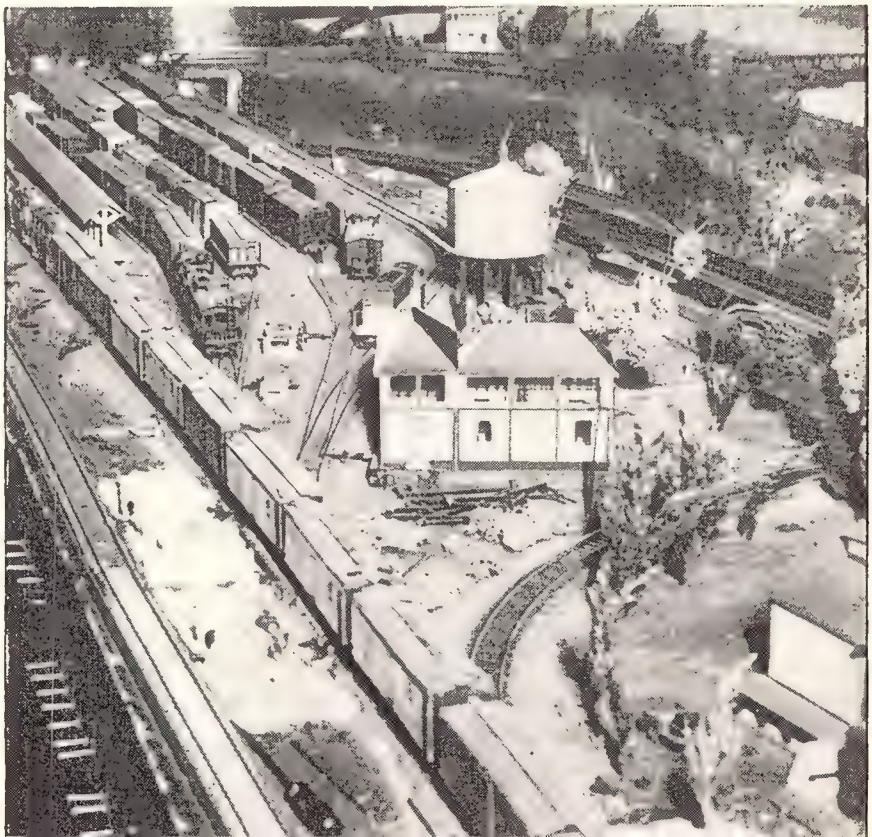
Plans full size S Gauge



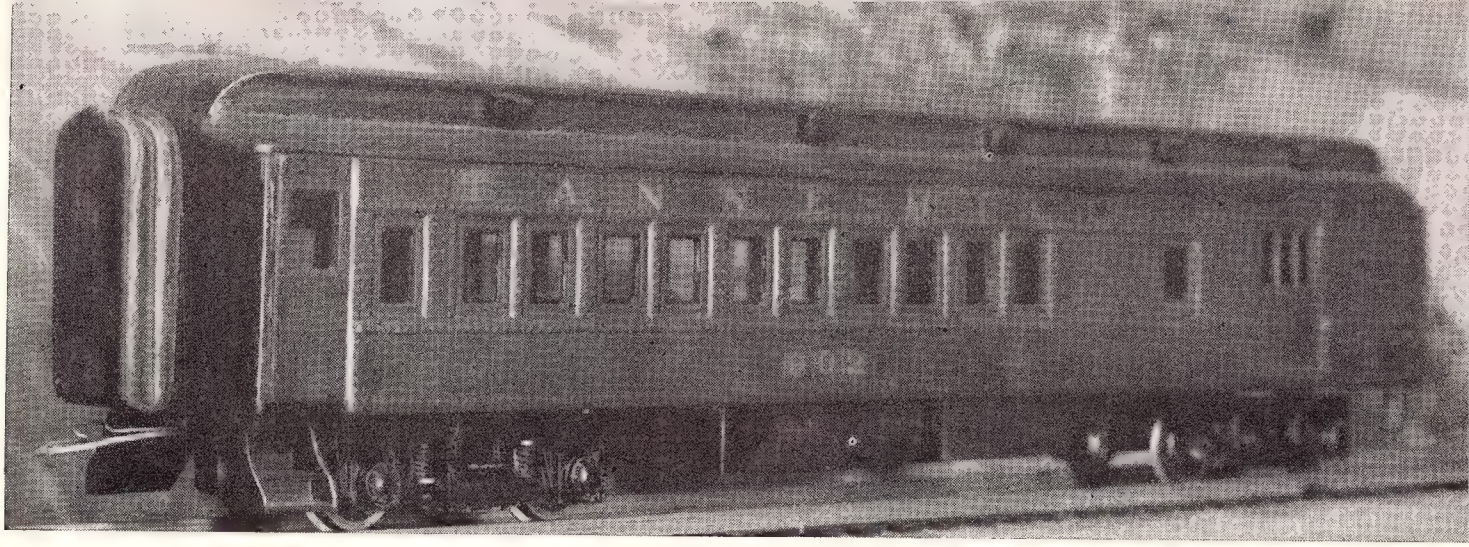


Eastbound at Brown Rock Tunnel on the Southern Division of the Western Valley Lines, an HO pike built by R. D. Porter of Milwaukee, Wisc. Approximately one-half of this layout is completed including scenic details, overall dimensions are 30 x 12'.

Tinplate equipment can be convincingly realistic! This scene shows part of the main line built by Stuart Scott Latham, an ardent *ten-year old* enthusiast from Syracuse, N. Y. Stuart knows more about wiring switches than anyone in his family and did most of the scenic affects although he did get some help from his brother, an HO'er. Photo by A. D. Latham, Jr.



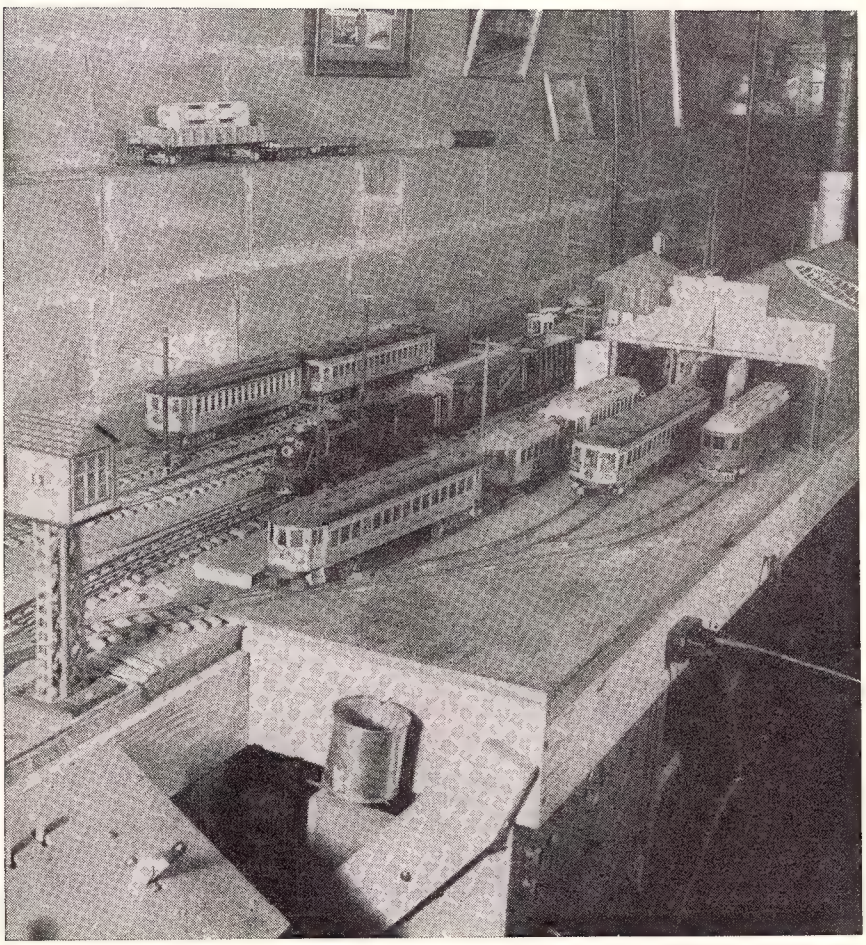
The Del-Mar-Va Lines, an HO gauge layout, 28 x 10 feet on three levels, built and operated by C. S. Landis, Jr., of Wilmington, Delaware. Minimum radius curves are 30 degrees, on main line 48. The long freight on left, powered by Varney A & B units, is pulling out for a run down the Coast Line; in right foreground, a Diesel (Alco #33) is waiting for water; and a Reading 0-4-0 is sorting loaded cars at platform.



Old No. 902 was in a bad crack-up in which an engineer, fireman and baggage man were killed, the first fatal accident on the Tanne-Hill HO Railroad System operated by J. B. Tannehill of Salem, Ill. It was rebuilt for sentimental reasons, but while in the shops, the Varney specifications were somehow reversed and the ventilators were spaced wrong. It has now been leased to the Trulin Shortline, a Company owned connecting line, and is on a daily gas-electric run.

YOUR NABOR'S PIKE

SEND US YOUR PIX FOR $5



WANT FIVE BUCKS?

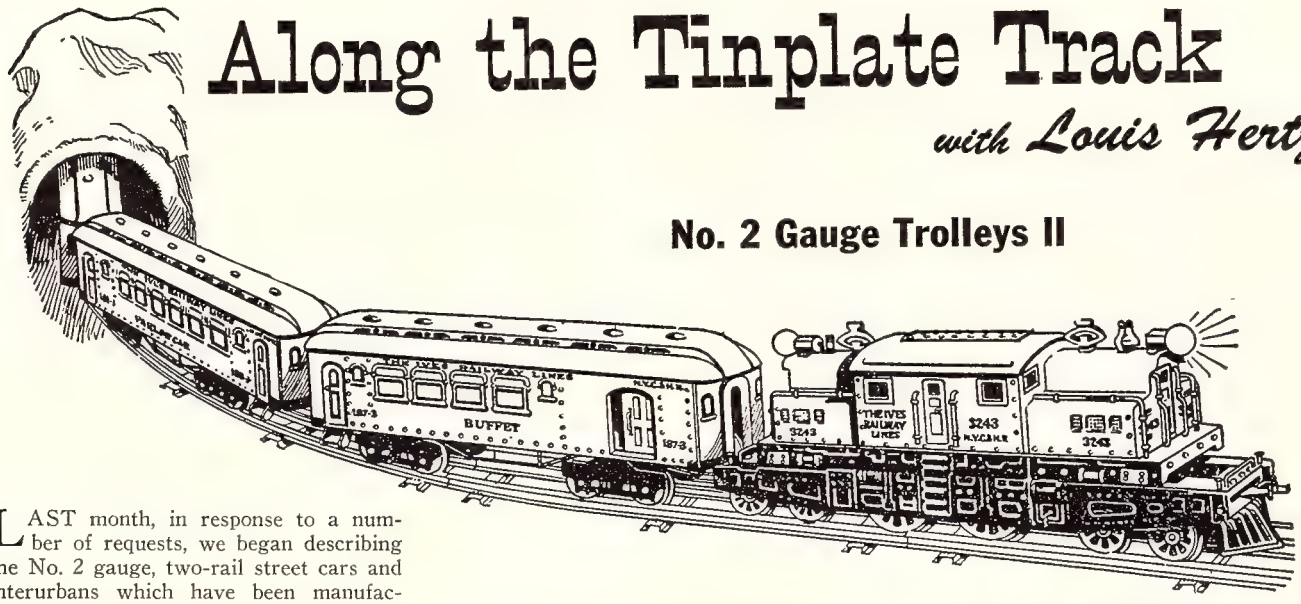
That's the minimum we pay for photos and captions appearing on this page. Photos are selected on a basis of reader interest and good photography—you are not limited to some super-detailed model so don't be bashful, your photo may be the next to appear on these pages. Please include all pertinent information regarding scale, materials and other interesting facts. Here's a good chance to let your "Nabor" see your work and make some easy money in the bargain. Send material to Picture Editor, Railroad Model Craftsman, Ramsey, N. J. Photos returned on request.

Center of activity on the Cleveland & Lake Shore Electric R.R. an O gauge layout which runs along three walls of a basement in the home of Frank Schroeder, Cleveland, Ohio. Equipment is patterned after Cleveland Ry and Lake Shore Electric cars.

Along the Tinplate Track

with Louis Hertz

No. 2 Gauge Trolleys II



LAST month, in response to a number of requests, we began describing the No. 2 gauge, two-rail street cars and interurbans which have been manufactured by American tinplate makers. Following an alphabetical arrangement, the 2″ gauge productions of Carlisle & Finch and Howard were discussed in the April issue, which brings us, now, to the Knapp and Voltamp cars.

Knapp

As we have remarked before, Knapp's conception of making an electric train line in the years around 1904 to 1914 seems to have been that a complete "line" at any given time should comprise one street car, one electric type locomotive, and one steam type locomotive, although the designs and catalog number of each respective unit might well change from year to year. At least, that is the conclusion that must be reached from a study of the catalogs we have seen, dating around 1908-1911. Possibly this may not have pertained throughout their entire electric train manufacturing period, but in the light of existing evidence, this is what we must deduce.

Three, or possibly four, varieties of Knapp street cars are known to have been made, albeit, as noted, only one at a time. Except for the one little car lettered "Pleasure Ave.," all seem to have been lettered "Electric Traction." Indeed, that is precisely what Knapp called a street car, an "Electric Traction" and in each catalog the respective trolley is listed under "Electric Traction" just as the electric type is captioned "Electric Locomotive."

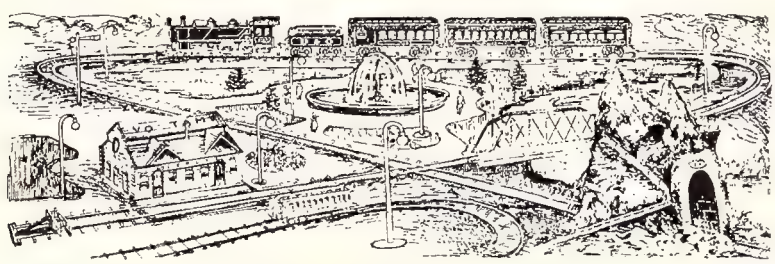
What appears to be the earliest type of Knapp trolley is a six window affair, with cast iron frames and working coil springs. There are two types of truck frame castings, differing in the height of the pedestals over the dummy leaf springs at the ends. The body has flat sides, and, like all Knapp trolleys we know of, open platforms. It was fitted with a reverse switch.

Around 1908-1909 a larger four wheel car was made, six windows to a side, the sides flaring, and otherwise very closely resembling an open platform No. 2 Lionel trolley. This Knapp street car was fitted with a trip reverse, and was known as No. 220A (No. 220 was a complete outfit with track). A trailer, No. 220B was made to match it.

A slightly later car had but five windows to a side, flat sides, no reverse and was considerably less elaborate. It was known as No. 211; its trailer as No. 212. The truck frames, with working springs, were similar to those on the No. 220A car. Were it not for the evidence of the catalog datings, both the comparative designs of these two cars and the sequence of numbering would suggest that the five window car was actually an earlier model than the No. 220A.

The fourth Knapp trolley is the "Pleasure Ave.," but it is possible that this is actually identical with the No. 211, as it is a five window car with flat sides, the chief variations from the catalog cut being in the truck frames, end platform and roof details. The "Pleasure Ave." car we have seen has a reverse switch, but its design suggests it may have been added later. The "Pleasure Ave." truck frames also appear to be cast in a mold, and while real coil springs are used, they are not arranged to work, but are simply fitted on projections cast in the solid truck side. It is possible the catalog illustration of the No. 211 is drawn from a sample, and in its actual production it took the form of the "Pleasure Ave." car which was illustrated in this department a few years ago.

Our information on Knapp trolleys is, unfortunately, not as complete or specific as might be desired, and if any readers can shed further light on these interesting little cars, we would appreciate hearing from them, and will pass any further data obtained along in a later issue.



An artist's conception of an early Voltamp 2″ gauge layout. The trolley or interurban does not closely resemble any actual Voltamp product. The layout includes some products of other makes which were sold by Voltamp. The station is Carlisle & Finch, and the large tunnel bears the trademark of Ernst Plank, a German manufacturer.

Voltamp

We can, happily, present a considerably more complete picture in regard to the Voltamp No. 2 gauge trolleys. As a matter of fact, the basic arrangement of the Voltamp line itself makes the picture very simple to present, although there are a number of important variations to be noted. Voltamp made a four wheel trolley, an eight wheel trolley and an interurban. There are three major types of both the four and the eight wheel trolley and two major types of interurban. Trailers were made for the first two models of the four and eight wheel trolleys, but not for the interurbans, or, as far as is known, for the last model four and eight wheel trolley.

The numbers remained consistent on each unit throughout the period it was made. The basic numbers—and it is when we leave these basic numbers that the complexities in Voltamp numbering begin to make themselves manifest—on these units were as follows:

4 wheel trolley motor No. 2120
4 wheel trolley trailer No. 2122
8 wheel trolley motor No. 2123
8 wheel trolley trailer No. 2125
8 wheel interurban No. 2116

Unlike Knapp, who gave the lower

number to the outfit with track, and then numbered the motor car alone, Voltamp gave the lower number to the car alone, then the outfit (for the four wheel trolley it was 2121), and finally, the trailer.

The three major varieties of Voltamp four and eight wheel trolleys were, first: open platforms; second: windows across the platform ends, but no doors, and, third, completely closed vestibule ends with doors. The last model eight wheel car had dummy poles on the roof; earlier trolley cars could be ordered with either dummy or working poles (one pole for a four wheel car) on the roof as desired. The interurbans are another story, which we will come to in a moment.

All Voltamp trolleys we have seen had embossed windows and working headlights . . . the only No. 2 gauge trolleys to be fitted with working lights. There is a variation in one of the early cars in which the openings in the clerastory are not embossed. Although we have not yet actually seen them, we suspect the very first four and eight wheel trolleys had non-embossed windows and dummy headlights. All of the Voltamp trucks are of cast iron with working springs. The early four wheel cars have a frame with dummy double leaf springs at each end. The second and third type have entirely different frames, best described briefly as possessing a ready identification in having but single dummy leaf springs at each end. The early eight wheel trolleys and interurbans have a truck with 2⅝" long sides; later models 4¾" long sides, with cross-rods at each end outside the wheels. The latter type truck carries its own reverse switch, while the earlier model mounts the reverse switch separately on the car body.

The interurbans have a headlight and a rear marker light. The early type has the older truck described above, cast iron locomotive pilots at each end, and the roof is cut more or less square across at the ends. There are also differences in steps and other details. These interurbans have glass in the windows, interior chairs and are generally far more elaborate and pre-possessing than most No. 2 gauge equipment.

Away back from around 1910 or 1912 on, Voltamp manufactured a relay reverser which provided directional remote control to any of their locomotives equipped with the unit. This could be purchased as an extra, or motive power bought with the unit already installed. The catalog simply notes the extra charge for the installation of the relay reverser on the four and eight wheel trolleys, but the No. 2116 was also manufactured and listed with the relay installed, in which case it was catalogued as No. 2117.

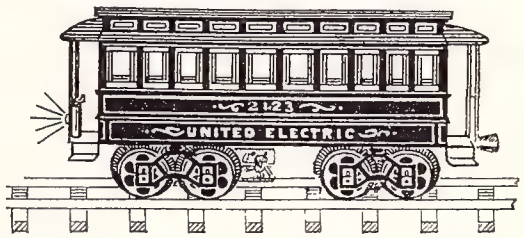
It was also noted that working trolley poles (the No. 2116 came regularly with solid cast iron dummy poles) could be furnished on the No. 2116 at an extra charge of $1.00. The part number of the working pole was No. 2119. However, although never cataloging it or mentioning the number, Voltamp also manufactured the No. 2116 interurban with working poles as the No. 2115, and lettered it accordingly. Seemingly, if anyone ordered a No. 2116 interurban with working poles, they got the car made up and lettered "2115". Voltamp's failure to mention this number in their catalogs is all the more surprising, for they included a vast array of numbers under each item, various outfits or "equipments," as well as separate listings of almost all the parts which went into their line. There must have been a good number of No. 2115 interurbans made up, and there can be little doubt the 2115 was a stock item and not pro-

(*Continued on page* 44)

VOLTAMP TROLLEY—Double Truck

Built Only for Standard 2-Inch Gauge Track

6 Volts ¾ Ampere Battery or Street Current



Electric Headlight

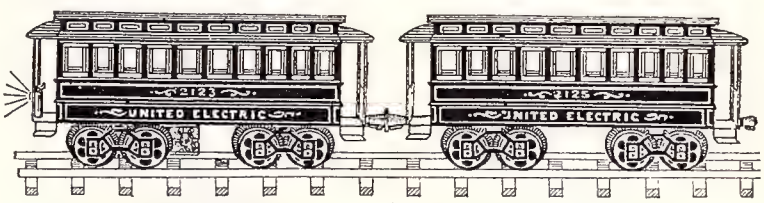
Price $6.00

The Double-Truck Trolley is a splendid reproduction of the larger cars used in the big cities. The trucks are carefully balanced and centrally bolted to the platform. The **Motor** is coupled to both axles of the forward truck by a set of four heavy brass gears and a steel pinion, an arrangement by which **both axles are driven** equally, insuring a steady and powerful pull on level grade or hill. This car will haul one or more Trailers over a 7 per cent. grade at good speed, using only 6 to 8 Volts of Battery or Street Current.

The **Body** is made similar to the single-truck Trolley, with a neat finish in maroon and white, gold stripes and lettering.

The addition of an **Electric Headlight** to all VOLTAMP railways lends a decided realistic effect. The lamp is made especially for headlight purposes, and has a reflector back which throws the rays over considerable space.

Specifications.—6 to 8 Volts, ¾ Ampere. Speed about 175 feet per minute. Length 14½ in., width 3½ in., height 5¾ in., weight 3¼ lbs. Has 10 windows on each side, two long seats, Electric Headlight and rear coupler to carry Trailers. Will take any curve of 15-in. radius and over. **Controller-Reverser.**



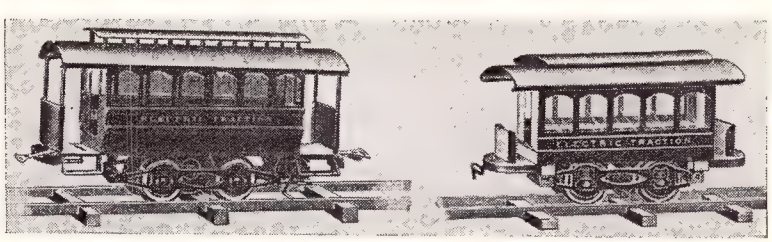
2123—TROLLEY 2125—TRAILER

TROLLEY TRAILER CAR, Double Truck, No. 2125, is identical with the No. 2123 Trolley, but has no Motor or Controller-Reverser. Automatic Couplers.

List No.		Price
2123	Double-Truck Trolley, weight packed 4¾ lbs.	$6.00
2124	Double-Truck TROLLEY, with 9 ft. Steel Track, Ties, Connector; weight packed 6 lbs.	6.35
2125	Double-Truck TROLLEY TRAILER, weight packed 3½ lbs.	2.50
2192	Extra Brushes, per set of 3, **prepaid, 15 cts.**; 2 sets, **prepaid**	.25
2408	Extra Reflector Lamp for Headlight, 6 Volts, **prepaid**	.35
2228	**Equipment.**—No. 2123 Trolley, No. 2150 9-ft. Coppered Steel Track and Ties (6-ft. Circle), No. 2154 Connector, No. 1316 Battery of 4 Dry Cells in case with Switch; weight packed about 25 lbs.	7.35
2229	**Equipment**—No. 2123 Trolley, No. 2125 Trailer, No. 2159 or No. 2163 Track and Ties, No. 2154 Connector, No. 2164 Bridge, No. 1317 Battery of 6 Dry Cells and Switch; length of train 30 in.; weight packed about 35 lbs.	11.50

NOTE.—No. 2123 Trolley, fitted with a **Relay-Reverser,** extra charge $2.50. The value of this attachment is instantly appreciated. The switch may be placed any distance away from the track, yet the car will be sent forward or backward as the operator wills. Works perfectly on Battery or Direct Lighting current

A page from the Voltamp No. 3 catalog of around 1912, showing the early model of an eight wheel trolley with open platforms. The relay reverse, which would provide these cars with directional remote control, is mentioned almost as an afterthought in note at bottom of page.



Two Knapp No. 2 gauge trolleys of the 1908-1912 era. The larger, more elaborate car at the left is actually the earlier model, while the smaller, crude, non-revenue car at the right replaced it about 1910. The larger car bears a close resemblance to the early model No. 2 Lionel trolley car, which was pictured in the October 1949 issue.

A TROLLEY EXPRESS CAR PART II

This express car is representative of many prototype roads. It is a case where a model has been freelanced in the same manner as the full size railways. Materials and dimensions are for an O gauge model.

by LONG VALLEY ELECTRIC RY.

LAST month we described construction of the floor, roof and ends, completely closing in the model. This month we consider the body details and finishing procedure.

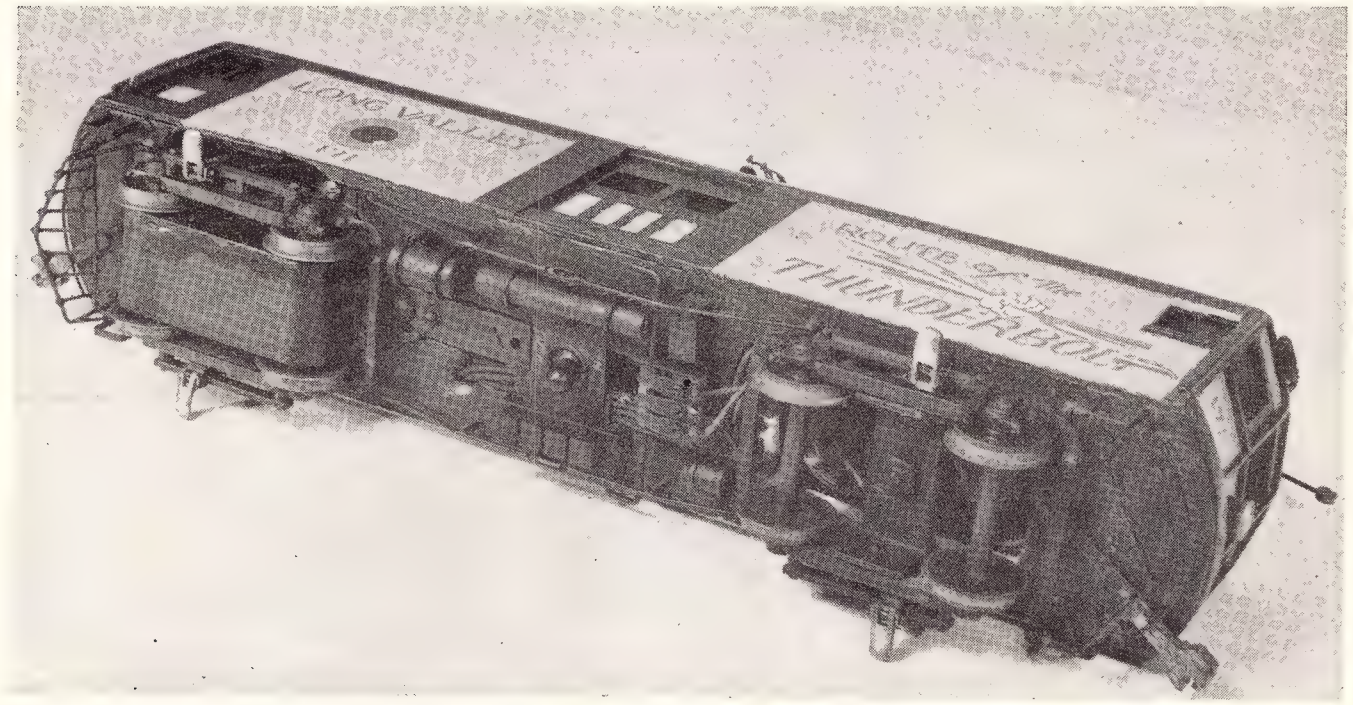
Next in order are the truss rods, illustrated by Item T. The posts consist of 1/16" dia. pins spaced out 1" on either side of the car center point as shown. Solder small washers on the pins that will permit ⅛" penetration in the floor along a line 3/16" inside the car edges. Cut off the pins ⅜" below the floor. The truss rods are lengths of 1/32" dia. wire soldered to the posts in the center and to the heads of small nails driven into the floor at the ends. In length, the rods extend 2⅞" from the center point in either direction. Turnbuckles will improve the appearance; they can be obtained from small fishing tackle swivels sold in any bait shop. It is a common model practice to suggest the presence of underbody control apparatus by installing a few blocks and similar items rather than to accurately detail the switchgear and brake items really necessary. On this model two air resevoirs, a brake cylinder, grid bank and a wood block not otherwise specified aid the manual reverse switch in filling the void between trucks.

A trailing truck bolster, shown in Item G, is used to carry the switchgear generally found on Long Valley cars in addition to mounting the truck. The 3 pole double throw Yaxley transfer switch alternately connects the motor with a hand reverser for AC operation or with the bridge rectifier for DC polarized control. If such apparatus is not planned, the bolster can be a simple strip fastened to the floor with wood screws at each end. The center point of each truck is to be located at a distance of 2¼" in from the adjacent car end.

Item H shows a ballast block that is probably the most useful accessory since it provides extra weight close to the power truck where such weight is most effective. This block is easily cast of lead in a wooden box constructed with inside dimensions corresponding to the block size. No top is needed since the lead can be poured into the box until it overflows the sidewalls. As a precaution, bury the box in a pail of sand or dirt so that only the top is exposed. By this means any leakage at the seams will be stopped and excess lead will overflow harmlessly on the sand. Solder a ⅛" by ½" brass strip along the bottom of the block in the specified location, then drill and tap the two required holes for the mounting screws. Reference to the cut away car side view will show that the ballast block is held in place first by a screw countersunk in the floor and later by another screw passing through the motor bolster.

This would be a good point to add the roof details, starting with the walks, Item U, that are cut from 1/16" by ⅜" wood strips. Scribe two lines deeply on one surface to create the appearance of three parallel planks, then glue 1/16" square blocks along the bottom surface spaced ½" apart. Notice the ⅛" dia. hole in each walk for the pole sockets. They can be used to properly locate the walks along the roof center line, bearing in mind that the sockets are 3¼" in from each end. Use small escutcheon pins driven through the blocks to fasten the walks on roof. Make two trolley sockets per dimensions set forth in Item V. Each socket consists of a ⅛" brass tube soldered firmly into a square brass plate cut from 1/32" stock. Since NMRA has standardized the trolley base pins to have a diameter equivalent to a 2-56 screw, the sockets should be drilled out No. 44 for a slip fit. The sockets will extend down into the roof so use the holes in the roof walks as guides while drilling these holes. Use a slightly smaller drill in order that the sockets can be pressed in tightly.

Holdown hooks of conventional design are bent from 1/32" by 1/16" brass strip to the shape detailed in Item Z. Two small holes drilled in the flat section will permit nailing in place at the ends of roof walks. The height of hook will depend on the poles actually installed. Since the poles do not extend out beyond car ends enough to interfere with other cars when coupled, they may be hooked down in the flat position as illustrated. The practice of sloping the hooked poles upwards was mainly done when the over-



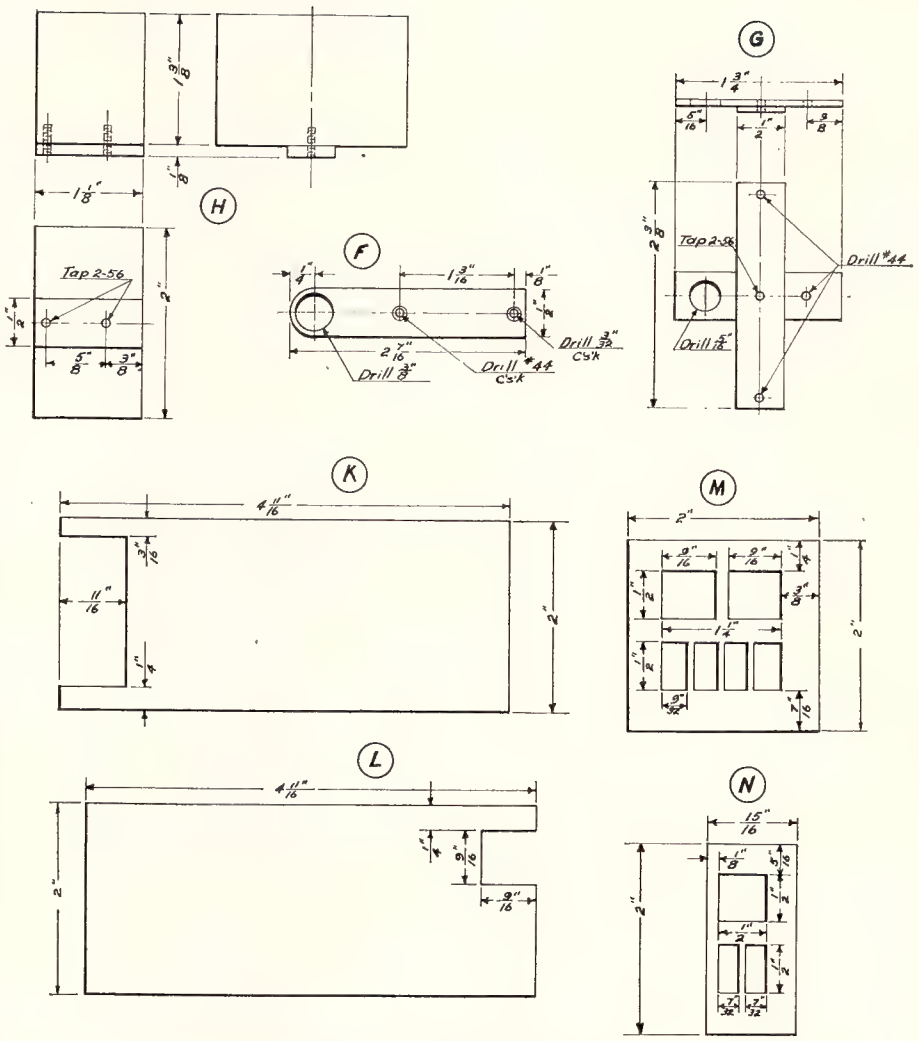
Underside details of the authors Trolley Express Car. As the car floor is of wood, many of the details have been mounted on detachable metal plates to facilitate repair work.

hang was sufficient to snag other cars, but it does make a distinctive appearance so suit yourself on this matter. For trolley pole construction, reference is made to the August and September 1948 issues of Model Craftsman which described common styles in detail.

You may recognize the pantograph as a Nipponese product, workable and easily obtained. It is elevated from the roof by four brackets detailed in Item Y. On top of each bracket is soldered one part of a common dress snap, the mating piece being soldered at a corner of the pantograph frame. This construction permits the pantograph to be pulled free from the roof when wire snags occur. If you make use of pantographs to any extent this worthwhile feature will quickly be appreciated. Form each bracket from 1/32" by 1/8" brass strip bending to shape outlined. No. 55 holes are drilled in the bracket feet for attachment to the roof with small wire brads. Twist each foot slightly so that the brackets will sit vertically on the sloping sides of the roof. Use the pantograph itself for a guide when nailing the brackets in place, just clip them on the pan then spike them down one by one being sure that the snaps do not bind. Two whistles, per Item X, complete the roof details. Make them from 1/16" dia. brass tubing, rounded at one end which has been plugged up with solder. A small wire "pipe" is then soldered in the open end and bent for insertion in the roof holes. A notch filed near the base will resemble the whisle throat.

The remaining body items not previously mentioned can now be added. The headlights are simple brass turnings having 2-56 screws threaded in the back sides. Tap holes in the car ends to receive the lights after painting is completed. The dummy retrievers are fillister head screws filled with solder that are attached in the same manner as the headlights. Location of the handrails is shown on the car side view. Bend these rails from 1/32" dia. wire and insert the ends in tight holes drilled to receive them. Pin a small length of 1/16" square wood strip under each motorman's window to act as an arm rest.

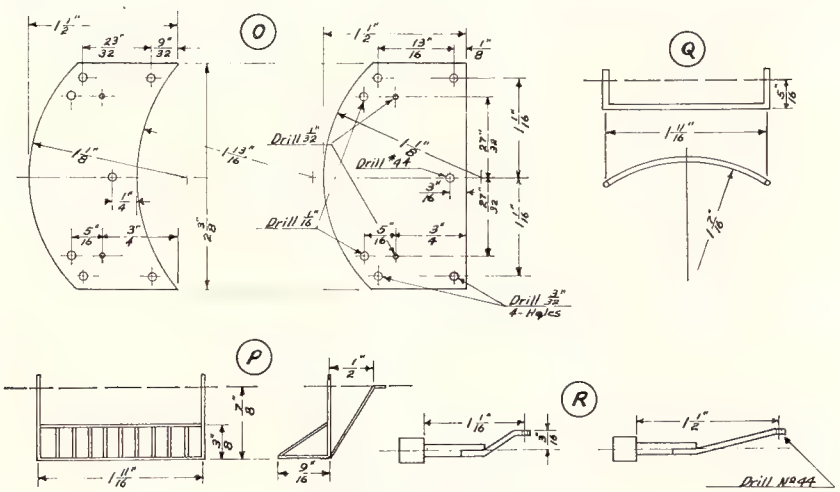
In regard to the power truck, most any commercial design having a vertical



HALF SIZE O GAUGE

motor can be installed, and needless to say, the newer under floor units would be excellent. However, there are still model makers who are interested in the economy and pleasure resulting from home made trucks, so for them reference is made to drive units previously described that will be found entirely satisfactory. In the March, 1946 Model Craftsman there appeared plans for a general purpose truck featuring side gears and hollow king pin mounting with a flat strip bolster for attachment to the floor. Item F details the mounting holes required in the bolster bar for this particular installation. The distance beween the innermost hole and the king pin hole will have to be lengthened for this application. The October, 1949 Craftsman described another truck of an enclosed, grease lubricated style that also is recommended. In this case a transverse bolster of normal type is specified, requiring attachment by screws to the slender edges of the motor hatch. However, lengths of 1/8" by 1/8" thin walled angle stock can be soldered to the outer edges of the bolster to provide good bearing surface along the hatchway edges and fastened with two screws on each side.

It is of passing interest to note that the drive shown installed on this car is a combination of both mechanisms mentioned above that can be duplicated as follows. First prepare the complete enclosed drive per instructions in the October, 1949 issue, excepting the transverse bolster that will be omitted. Then install a hollow king pin bushing on the lower motor bracket as outlined for the general purpose truck in the March,



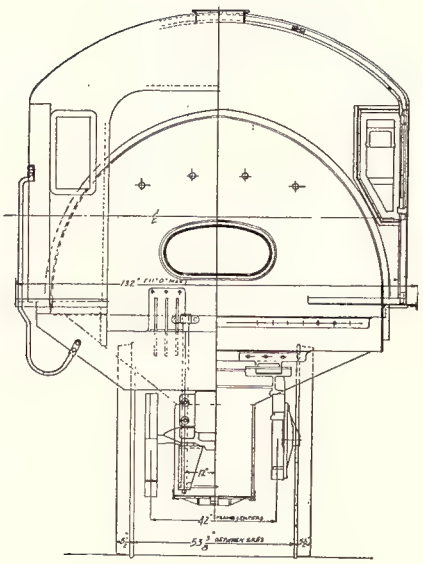
HALF SIZE O GAUGE

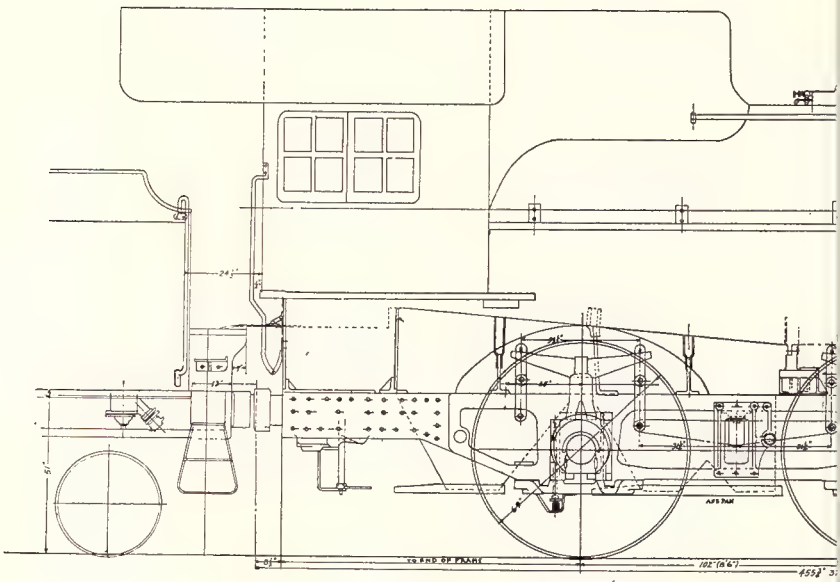
(*Continued on page 28*)

D L & W AMERICAN TYPE 4-4-0

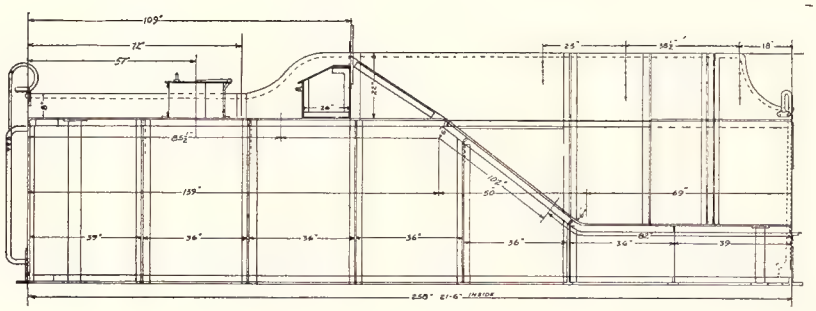
This locomotive, now retired, was used in fast passenger service around the turn of the century. It was stream-styled several years prior to retirement and placed in local commuter and Branch line service.

Lackawanna Railroad





ALL PLANS ARE SHOWN FULL SIZE S GA.
3/16" = 1 FOOT



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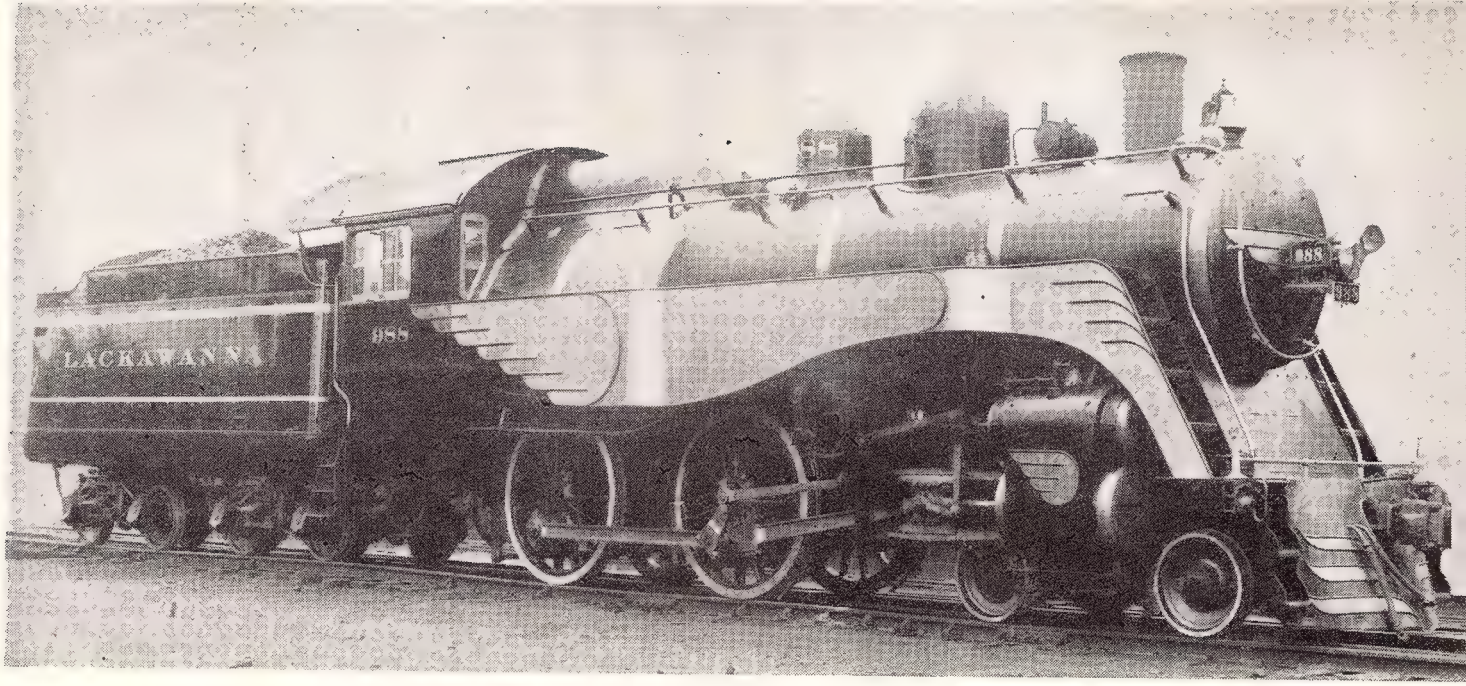
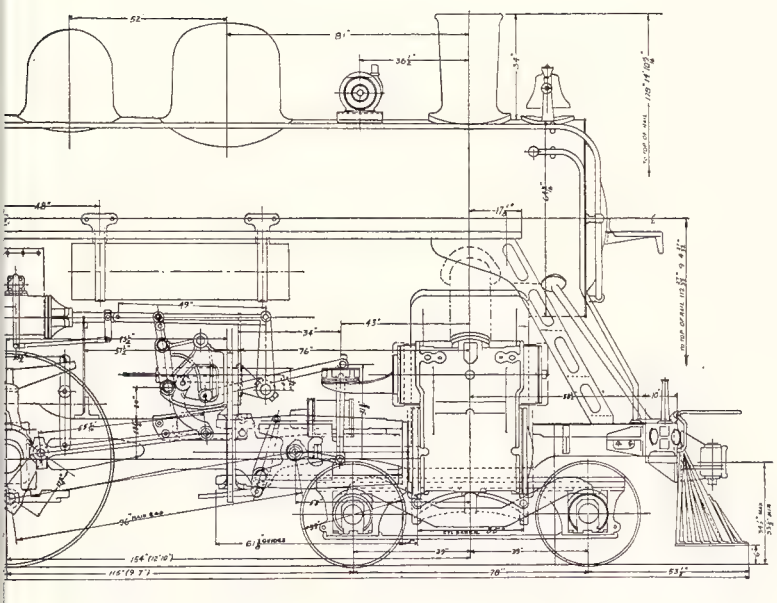
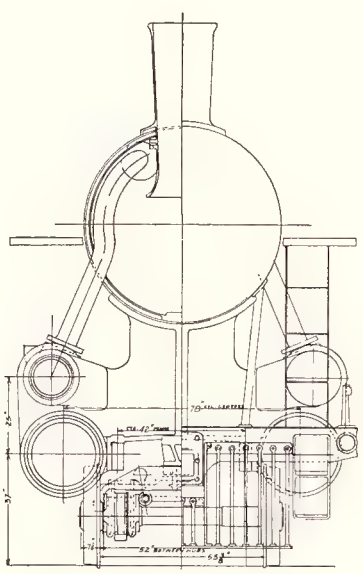
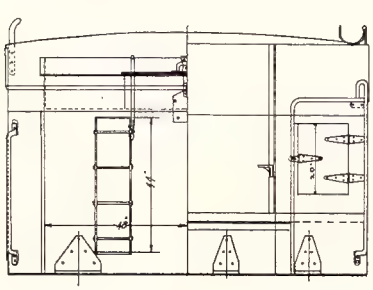


One of the last photos taken of the D L & W's 988. Just prior to retirement it was used in commuter service and on branch line passenger runs. D L & W photo.





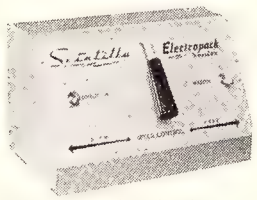


This passenger locomotive was introduced on the Delaware, Lackawanna & Western in 1900 and was assigned to haul fast passenger trains in main line service. At that time, passenger equipment was much lighter and not air conditioned as today. Eventually this type of locomotive was replaced with heavier power to meet the demands of heavier equipment. All of this type of power has now been retired and was last used in hauling passenger trains in commuter service and on branch lines. This locomotive was stream-styled several years prior to retirement. Built by Schenectady with Baker valve gear, total loaded weight was 151 tons and it developed 13 tons tractive power.

The Amp Champ SCINTILLA Power Packs Pack a Wallop

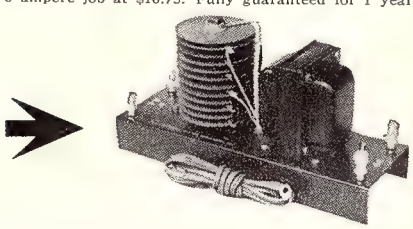
There's a Scintilla Power Pack made just for you. Because our range of powerful power suppliers is so great and varied in design and price 9 out of every 10 model railroaders buying power packs in 1949 chose from the Scintilla line. Scintilla engineers are power-pack experts who know how to give you more power and more value for your money . . . see and inspect Scintilla units at your dealers today.

THE 1950 DYNAPACK features a new, oversize speed control plus two direct current circuits (one controlled, one fixed at 12 volts), and a third circuit to provide 16 volts of A.C. Also now includes new master switch, push-button-reset circuit breaker and forward-reversed directional control. Rated at 4 amperes D.C., plus 3 amperes A.C. at 12 and 16 volts each. Price: $24.75. FULLY GUARANTEED FOR ONE YEAR.



SCINTILLA ELECTRAPACK SR. is the most widely used power supply in the U.S. Ideal for TT & HO. Full control panel includes Plenaflex, ultra-smooth speed control throttle with built-in overload protector; directional controller and master switch. Genuine full-wave bridge selenium rectifier. Two circuits—12 volts variable D.C. (maximum 12 volts at 2½ amperes) and 16 volts, fixed A.C. Approved for sale and use by City of Los Angeles. Fully guaranteed for 1 year. Price: $19.75.

For hobbyists ready to switch from tinplate to scale, Scintilla has 2 models of the DIRECTIFIER. Each is ready to operate in conjunction with any adequately rated tinplate stepdown transformer. Can be connected in 2 minutes with 2 short wires. Included on base is forward-reverse directional controller. The 4 ampere is priced at $9.25 and the 6 ampere job at $10.75. Fully guaranteed for 1 year.



SCINTILLA POWER KITS contain the same high quality components as do our factory assembled products, and save money for those handy with tools. Either the 4 ampere kit or the 10 ampere kit can be assembled in less than 60 minutes. You get everything you need—simple instructions, transformer, rectifier, circuit breaker, base, on-off switch, hookup wire and all necessary hardware. The 4 ampere kit price is $17.50; the 10 ampere is $21.95—fully guaranteed for 1 year.

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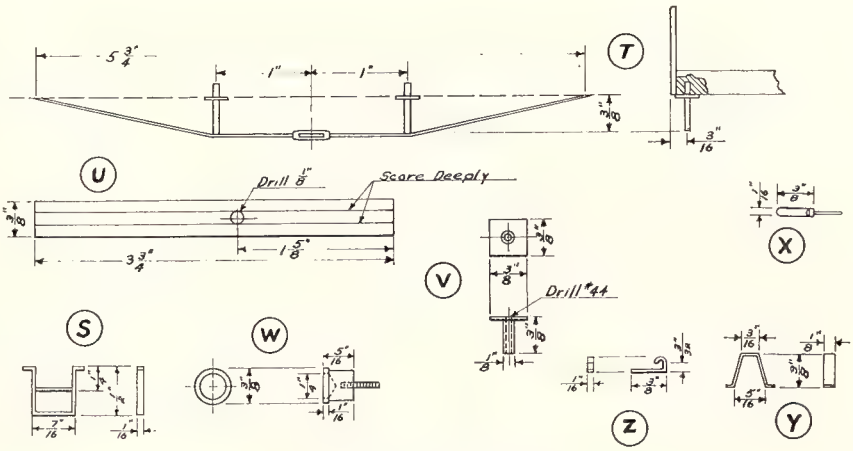


HALF SIZE O GAUGE

A TROLLEY EXPRESS CAR

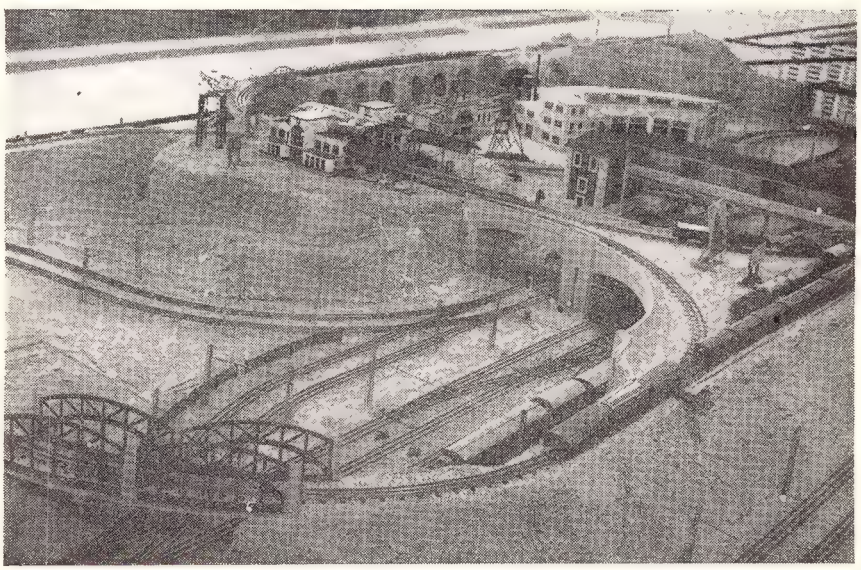
(*Continued from page 25*)

1946 issue, noting that the bolster bar dimensioned in Item F is correct for this specific purpose and further that the bar protrudes from the side opposite the motor field coil.

The motor truck side frames ride on the axles without carrying any weight. Hold them in place by soldering on end bars, thus following prototype practice. The trailing truck functions in normal fashion, but it may be necessary to pad up the bolster for correct floor height. If equalization is not felt necessary, end bars will help looks of trailing truck.

Virtually any style of wiring circuit can be installed since the hooks and poles are insulated and can be reached by wires through the roof from the hatches. If you are interested in both AC and DC operation take a look at the wiring circuits published in the April, 1946 Model Craftsman. When a manual reverse or rectifier is used, both pole sockets and a pantograph bracket can be connected together by a cable running along the roof so that only one lead through the roof is necessary for entry into the switchgear hatch.

The car can be painted either in dull or bright colors with justification for either choice, but certainly the majority of the motor freights were drab and homely. A few companies, however, found advertising value in attractive paint jobs, particularly during the latter days of the interurban, so one occasionally saw brightly painted cars bearing slogans about the value of fast electric freight service. One such motor was Eastern Michigan's No. 2014, done in white enamel with black trimmings. Trailers pulled by this car were painted the same colors. What a sight this must have been when passing down the city streets.



Layouts in O, HO and T gauge (what's T gauge?) constructed entirely of Spanish built material. Note the double tracked junctions, double slip switch and the scissors cross-over as well as overhead contact wire. Since the track has inside third-rail, may we presume that this is commercial Spanish "tinplate" or something built especially for the exhibit? Note the through-type station on upper level, apparently composed of two identical units with train shed between. Unit in foreground looks like part of a Talgo train of which AC recently built several for Spain and one for experimental use in the U. S. A.

Railroad Model Craftsman Layout No. 1

A small HO gauge pike with diversified operation and a large amount of trackage. It was on exhibit at a recent hobby show and gave more than 100 hours of trouble free operation.

by BILL SCHOPP

A GENERAL description of Railroad Model Craftsman Layout #1 was given in the March issue, actual construction methods were outlined in the April number. This month we cover trouble shooting, converting equipment to sharp radius curves and electrical problems.

The first step in converting your Belle of the Eighties for sharp curves is to remove the pilot truck and with a mouse-tail file, lengthen the slot in the pilot truck as shown in fig. 18. Come as close to the edge of the casting as possible without breaking through. But if you operate the engine with the long slot in the pilot truck, you will not have the truck derail on sharp curves, but the wheels will hit the cylinder block causing a short circuit or other derailment.

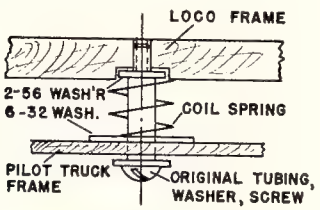


FIG. 19

Now it is possible to file chunks from the back of the cylinder block to allow the pilot wheels to get over further. I preferred, however, to revamp the pilot truck as shown in fig. 19.

Smaller wheels will not hit the cylinders, so get two pairs of Model Die Casting's hand-car wheels for forty cents and substitute them for the regular pilot wheels. Sure they are really too small, but this is somewhat alleviated by the fact that they are *spoked.* You will find that one wheel of each pair is insulated by means of a coating on the axle. This must be scraped off to permit the axles to rotate freely in the pilot truck, but before you do any scraping nick a secret mark in the rim of each insulated wheel for when the insulation is removed from the axle it is impossible to tell which wheel is insulated and which is not without applying electricity. When you place these wheels in the pilot truck, be sure that the little plastic washers are still in place to keep the insulated wheel from shorting through the frame. Be sure your pilot truck rolls smoothly before you reattach it to the Belle.

The original method of springing the Belle pilot truck will not do on sharp curves because the spring will come over and hit the back of one of the wheels. I devised the scheme shown in fig. 19 and think it is even better than the original for any curves because, when correctly installed, the pilot truck bears some of the engine weight and so has less tendency to derail. This may or may not take a little weight off the front driver and lessen the tractive force of the loco, but it is very little that is lost.

So I could use the original piece of tubing in the pilot truck assembly, I put 2-56 size washers in the depression in the frame where the pilot truck screw fastened. This was to allow for the smaller wheels used and hence the lower position of the pilot truck frame. The tubing, screw, and 2-56 washer *under* the frame were the original, but around the tubing I placed a loosely fitting spiral spring (wound of .010" steel piano wire on a piece of 1/16" rod turning in a hand-drill) which at the top pressed against the frame or the 2-56 washers there, and at the bottom pressed against a 6-32 washer which slipped around the tubing and bore on the top of the pilot truck frame. The piano wire spring was tightly compressed so that its maximum amount of "give" upward was about half the depth of the wheel flanges. This may require a little cutting and fitting of the spring or of the 6-32 washer. As I said before, the weight of the front of engine is now on the pilot truck and she will ride much better than before.

I also added a front coupler to the Belle to rectify a grievous omission for a road having only a few locomotives. I removed the cowcatcher and drilled a hole through the center of it about 1/16" in diameter, and under the tongue used to attach the cowcatcher to the frame. Then I sawed out a rectangular slot to take the shank of a Mantua automatic

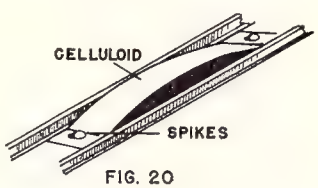


FIG. 20

coupler, the loop part only. I used a jewelers saw for this job, (and quite a few blades) holding the cowcatcher in a vise. The coupler loop was fastened in with the same self-tapping screw used to hold the pilot. Owing to the vast overhang of the front end of a 4-4-0 type engine, this coupler did not prove as useful as I thought it would, but it did serve its purpose several times and can be added to any loco that does not have a front coupler.

If you use Mantua couplers I suggest you get one of the special gauges they make to check coupler height. For once this is taken care of on all engines and cars, your coupling troubles will be eliminated. I used celluloid uncoupling ramps as shown in fig. 20. They are of course cheaper and more sightly than the standard ramps sold for uncoupling, but do require accurate spotting of the cars when uncoupling since only one pin is raised at a time. If screws or uncoupling pins drop off, apply a little cement to their threads before putting them back. And here is another tip: when you lose such a screw or pin or any other small part off any engine or car, you can almost always find it back along the track.

If something comes unsoldered, resolder it. But be sure you know how to

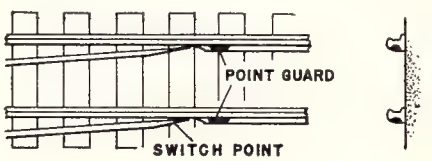


FIG. 21

solder. I built the whole layout with an 80 watt soldering iron, some 50-50 wire solder, and Nokorode soldering paste. Parts to be soldered should be clean, at least free from gross dirt. Apply a speck of paste to each part and to the tip of iron. Then tin the tip of iron by touching it to the solder. Lay tip of iron against the joint to be soldered until the solder flows into the joint. This should be just a few seconds when working with small stuff like wires, rails, or thin sheet metal. Remove the iron and watch the solder crystalize as it cools. That's all there is to it, but it requires practice. Please don't think I have been taking Nasty Pills when I say this: if you won't try to learn to solder, you'd better give up model railroading and go back to butterflies, stamps, tropical fish, or street-car transfers. The clever design of modern engine and car kits makes soldering unnecessary (as a rule) in their assembly, but there are always places where it *is* needed. And, someday, you may want to build your own engine "from scratch" which is one swell way of having fun.

What to do about derailments? Find the cause. It may be, if only one car or engine goes off at a certain place, that that piece of rolling stock has out of

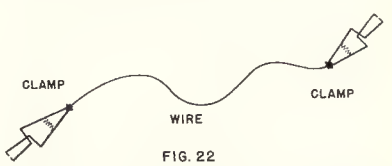


FIG. 22

gauge or wiggly wheels, or maybe a bent axle. Check the car or engine itself carefully. I explained above how the Belle of the Eighties as it came from the factory would derail on sharp curves and told how I fixed that. Perhaps your bad car has the king-pin or truck mount-

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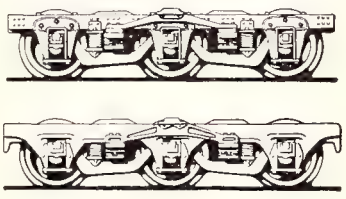

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ing screw in on an angle. After you think you know all derailment causes, you will still find new ones.

But perhaps the derailment comes from the track. If you use Atlas or other ready-made track and switches, it is very unlikely that your track will come out of gauge except at switches where there is sometimes a long space between staples. BUT rail joints or any other break in the track is always a possible cause of trouble. Get your rail joints as smooth as possible by liberal use of spikes, rail soldered to spikes, and bending the ends of the rail for a good meet if on a curve. Solder at the joint will help, too. The joint between switch point and closure rails is apt to give a jar though hardly enough to derail. However when you make a curved switch, as in our switch 6, a rather wide gap appears at this point and must be treated either by (a) carefully aligning the rails involved in a straight line, or (b) removing the points and cutting the back of one enough shorter to close the gap.

The switch points and frogs are other possible derailment makers. You might like to fill your frogs up with plastic wood or solder and rut out flangeways with a warding file so that the wheels ride across the frogs on their flanges rather than their treads. This makes less bumpy passage. If your wheels "pick" the points of a closed switch, try making a point of a blob of solder placed inside the rail to deflect the wheels from the point, see fig. 21. If your wheels rise up when passing through the frog and guard rail region of a switch, check the track gauge at that point carefully since the switches are presumably made right at the factory. A great help in tracing down any track troubles is a single freight truck. Without the car body to block your view you can observe the action of the wheels as the truck is run through the suspected track under various pressures, side tensions, and speeds.

Electrical Problems

I think a lot of your trouble will be electrical. A great help in checking engines is a pair of test leads as shown in fig. 22. These are just lengths of wire with small clamps on each end. In using them, clamp one to the frame of the locomotive and touch the other to the insulated drivers or to the wire that normally runs back to the tender. The other ends of leads should be clipped directly to the D.C. binding posts of your power supply. Once you are certain your control panel is o.k., and your track it o.k., you can clip them right to the two running rails. There is not space here to go into the ramifications of trouble shooting on engines. I just want to make the point that your engine must be *right* when you think you have track troubles. When you place your loco on the track be sure that the insulated wheels on the pilot truck are on the left-hand side, the same as the drivers. And be sure that all the insulated wheels on the tender are on the other or right side.

To go back to fig. 9, if either of the gaps at the back of oval had been omitted, you could still have run an engine. But the turning of either of the two switches on the oval would have caused a short circuit around the back. I hope you did put the gaps in and used plastic rail-joiners, for gaps sometimes will close up or partially close up due to expansion and contraction or work on the track way down the line.

A *partially* closed gap between switches 5 and 6 caused me some trouble during the show. A train running on the inside oval was alright, but while it was running I noticed the direction indicator light for the yard block on the control panel was flickering weakly. When I turned the DPDT direction switch for the yard block to run the same way as the train on the inner oval, the train would stop and the ammeter would fly all the way over indicating a short circuit. But when I turned the yard DPDT for the opposite direction from that in which the train was running, the train would take off under full power notwithstanding the low positions of the rheostats. Very mysterious! Since the control panel in the Custom Club power pack had been factory wired and had performed o.k. for several days, I knew the trouble was in the track somewhere between the inner oval and the yard. Since these two blocks met at only two places, not much looking was required to find the troublesome closed up "gap" and push it open again and resolder the abutting rails to nearby spikes to hold it open.

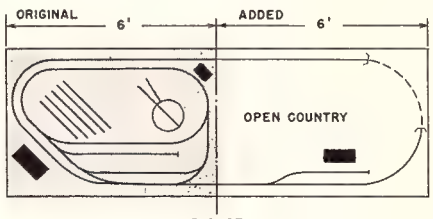

FIG. 23

A good bit of the time at the show, particularly when I was out eating or kibitzing, we just let the railroad run round and round. Several times I came back to find that a train preceding counterclockwise around the outside oval was stopped at the rear left corner of the layout and would not move. What had happened was that whoever had been sitting or standing at the front of the table had brushed against the choke handle controlling switch 1 or 2 and opened that switch not enough to show but enough to break electrical contact. This "killed" the track around to the gap and consequently the train would stop there. An important feature of two-rail operating that is built right in without any extra work on your part is that an engine will step back of a switch that is turned the wrong way! If, for instance, switch 2 were turned for the siding, the track in front of the terminal clear 'round to the gaps was killed and any engine on it would stop. When you get onto this wonderful truth, you can use it to your advantage.

For instance if you want to exchange trains between inside and outside ovals, you must stop the train on the inner oval, while the outer train backs onto the inside track and out of the way on to the yard lead. So you turn switch 5 for the curve thus killing the inner oval back to the gap at the front. The train will wait patiently here, even with the power turned on, until switch 5 is placed in the correct position for it to proceed. Again if you want to hold a switching engine out of the yards and roundhouse, but away from either main line, just run it back on the team track and close 6 against it. The team track will naturally be killed (actually both rails take on the same polarity) and the engine will stay there until the switch is lined up and power turned on. As I pointed out before, in two-rail, each track switch also functions as a SPDT electrical switch to turn power on or off on the tracks branching out from it.

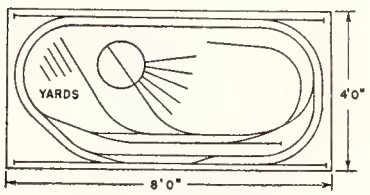

FIG. 24

In using closed switches to stop engines, you must be careful that the wheels of any one engine or any one truck do not bridge across a gap for this is likely to cause a short circuit, although usually a half hearted one. I could go on elucidating this theme all night, but the best way for you to learn the possibilities of the great truths of two-rail is to build the layout and work them out in practice.

Sometimes even when I, the alleged "old master" was operating the pike a train crossing from one control section to another would jump back amidst a shower of fireworks from the pilot wheels. This was because I had failed to have the two sections or blocks set up for the same direction, which was indicated by the position of the reverse DPDT handles, and, on the Custom Club power pack, by indicator lights. Sometimes, too, when a train crossed over from the outer to inner oval, it would stall at switch 1 even when power was on the inner oval—why? Switch 3 was turned wrong, thus killing the left front part of the inner oval. Incidentally, when going from block to block, have the speed controls at about the same degree.

During construction of the pike, while it was operating from one temporary reverse switch, I found that when I turned switch 5 to enter the yards, a short circuit would occur but that this disappeared if I turned switch 7 for the ladder track. If I left 7 set for the ladder and reset 5 for the inner oval, the short would reappear. Very mysterious? Not so much, although it did take a while to find. In two-rail, using choke controls on your switches, when short circuits occur and disappear with the

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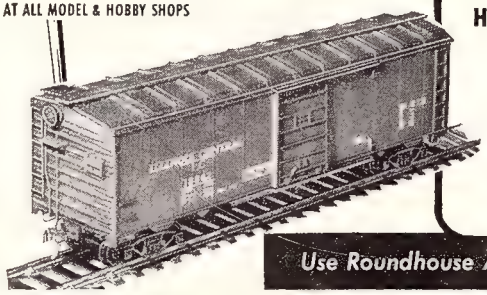

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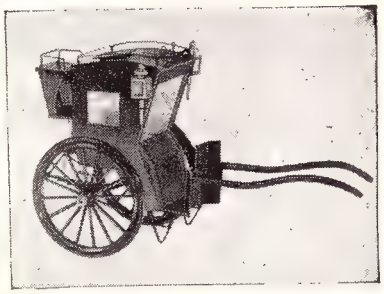

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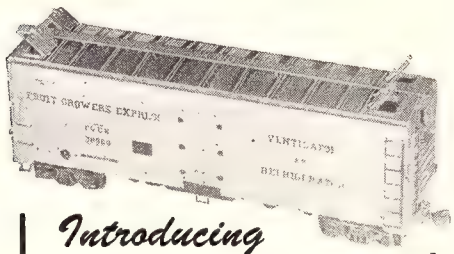

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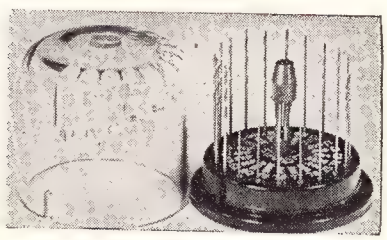

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turning of various switches, you can nail the short circuit down to something between the two choke cableways or between one cable and a track (such as a staple rubbing the bottom of the rail). In my case I had carefully wrapped cables with friction tape where they crossed or ran close to each other, and watched where I put my staples and screws, but I checked these again. All o.k., apparently. But at one place where one cable ran thru a ¼" hole drilled through one crosspiece, I had needlessly added a staple to keep it from slipping. This staple had twisted a little sideways and was rubbing the other cableway!

Of course a derailed car in the yard might cause a short only when the switches were lined up for the track it was on. This type of short is easy to locate. However, I had one occasion where a short seemed to occur on one certain spur track, yet every car on that track was on the rails. By removing one car at a time from the track with the "big hook" (i.e., hand) I located the offending car which proved to have faulty insulation on one set of wheels. On another such short circuited occasion, cars were all on rail, wheels were o.k., but a brakewheel shaft had been pushed down and was grounding against the wheels.

So you want to build the Railroad Model Craftsman Layout #1? Read this article several times, the second time not just skimming through it but studying out what is meant by frequent reference to the drawings. I have tried to answer all possible problems that will come up for you, but there will still be questions if I wrote on to twice this length. But many times your hobby dealer will be in a position to set you straight. Many times he will be able to recomend other brands of equipment than the ones I used, but you and he must bear in mind that this is a SMALL railroad so that six drivered steam engines, #6 or #8 switches, 24" radius curves and so on simply will not work because of physical limitations.

Model railroading is a lot of fun, but it is also a lot of work. Don't expect to whip this complete line together in one week-end. For best results it should take three months to a year so you can work out the bugs as you go along and lavish much more detail than I had time to do.

Cost? At the Philadelphia Hobby Show we called this complete layout $250.00 worth of equipment, which it really was. The two engines in kit form represented about $50; the power supply about $90; the track and switches about $50 more; cars, buildings, and details more than made up the remainder. In addition there was over a hundred dollars worth of labor and non-railroad materials, most of which you would not have to lay out. But a smaller capacity power supply together with control panel components should cost you $25 to $30 altogether, plus a little work. Track, switches, switch-controls, engines, cars, buildings, details can all be bought piecemeal with a large engine and of course the power supply representing the biggest single investments. Model railroading as a hobby can be just as inexpensive as you choose to make it, if you average your expenses on a weekly basis. Another way to cut costs is to make up track, switches, power supply, motive power, cars, buildings, and so on yourself buying only barest essentials, rail, ties, spikes, rectifier, motors, gears, driving wheels, a few castings, trucks, couplers, carboard, paint, and cement. Articles describing such money saving methods appear from time to time in the Railroad Model Craftsman.

The operating fun on Layout #1 is limited chiefly by your imagination. More fun of course can be added if you install the extra switches 2-a, b, c, & d. Take your engines from the roundhouse and make up a passenger train to run around the outer oval counterclockwise. Then make up a freight from the cars stored in the yard to run around the inner oval clockwise. Pick up cars at various industrial sidings and set other cars out there. Let the passenger train pick up a few express refrigerators from the freight. Get the passenger train on the inner track and the freight on the outer track. Reverse directions of trains. Make one long train and pull it with two engines. Put the cars away on the yard tracks and return the engines to the roundhouse at the close of operation.

Want to expand the layout? Just add another panel to it. Fig. 23 gives a few possibilities. Do you have a larger space already, perhaps eight or ten feet long? Stretch out the pike as in fig. 24. Do you have a 5 x 9 ft. ping-pong table? Just build the whole design, but enlarge it. This will give you bigger curves so that "six coupled" engines such an 0-6-0 switcher or mogul can be operated. The possibilities with more space and a two or three level railroad are almost limitless.

This layout is now owned by Donald A. Somerville of Drexel Hill, Penna. who has been operating it successfully for several months. If you have any specific questions concerning the construction, design or maintenance of this particular pike, drop me a note care of Railroad Model Craftsman.

CORRECTION

In the layout diagram for Railroad Model Craftsman Layout #1 there are two sets of double gaps in the outside main line track at the left side. As several readers have pointed out, this would result in a dead section of track. Actually, *only one* of those sets of double gaps should be installed if you build the pike —preferably those toward the rear.

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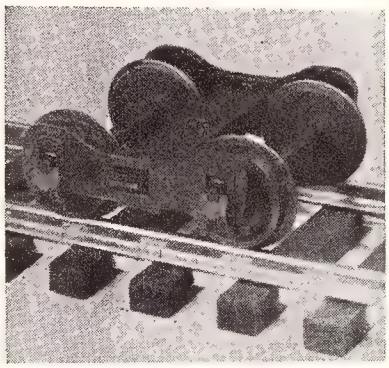

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PANAMA RAILROAD CLUB

(*Continued from page* 10)

All switches are now operated by solenoids mounted under the table and these solenoids also actuate contact springs which line up the routes and circuits and control the traffic throughout the two rail system. I had a wiring plan once, but extemporaneous improvements and additions have so obsoleted it that I live in daily fear of some child getting entangled in a few wires looping down under the benchwork and jerking out circuits that would take me hours of backbreaking, undertable tracing to repair. This layout, though admittedly lacking in many essentials which because of time limitations were deliberately omitted, permits continuous main line operation by one individual and interesting switching operations.

Operating Difficulties

There are difficulties to model railroading in these parts which you in the States are spared to a great extent. To begin with, the Panama Canal operates on 25 cycle alternating current. One can't blame them too much for this because there were no commonly accepted standards when they designed their electrical system some forty years ago. Nevertheless, this power is quite unhealthy for transformers and other equipment designed for 60 cycles. Of course, 25 cycle transformers are the answer to that question, but having four of the 60 cycle variety I couldn't stomach any additional expenditure for power that wouldn't be needed after leaving here. I found that two identical transformers hooked up in series in both primary and secondary windings produced something that made the locomotive run, so I have asked no more questions and let it go at that. This situation, however, has delayed the conversion to DC power until my return to the States.

Most parts and equipment must be ordered by mail from the States. This means that if you find out that you need something to complete a job, instead of running around to a hobby shop the next day and picking out what you want, you must study catalogs and magazine advertisements, order what you think is suitable then wait, and *wait* and *wait!* The mails are slow but many dealers are slower. It took me six months and four letters, increasing progressively in nastiness, to get switch machines from one dealer, four months to get my first batch of Graceline couplers, and one concern after nine months still has a pair of drivers I sent them for repair and $5.00 of mine. Some dealers never acknowledge an order and it seems that they cannot fill one until it has been properly aged. I don't understand this attitude which is not only bad business but bad for the hobby. I have discovered a few old reliables now and will deal with them henceforth.

Last and probably worst of the difficulties of railroading down here is the

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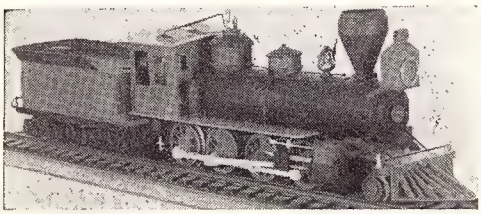

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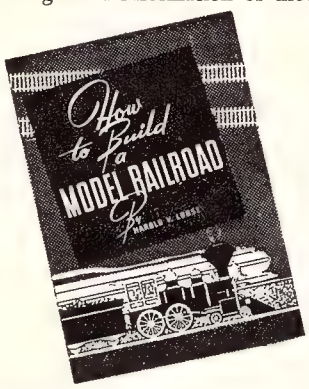

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tropical dampness, and a layout on a porch facing the prevailing winds is particularly bad. I would not have bought steel rail for tropical service but having a fair stock of it on hand I used it. First, the rust has to be sandpapered from the track each time it is used, and after any protracted period of idleness a file must be used. Next, the rails rust under the fish plates, requiring each rail joint to be bonded. Then dampness or fungus or something happens to bind the armatures in the switch machines. I have licked this latter problem in all but one machine which, being within reach of the control board, gets a poke with a screw driver every time it sticks.

Storage Facilities

My layout is devoid of all car and engine storage facilities. I had no intention of taking the time to build these installations since all rolling stock, tools and even the transformers and a detachable part of the control panel, are stored in a "dry closet" to protect them from the dampness. These closets are equipped with heaters to prevent mold from growing in shoes overnight and to keep clothing from mildewing. Lights are also left burning in them to discourage roaches from feeding on clothes. Roaches like wire insulation and the sizing in car diaphrams too. Though the Union Central Railroad has usurped most of my dry closet, I still manage to crowd my clothing in there too. This situation is not conducive to railroading when you have but an hour or two to devote to it. What with sanding the track and carting all the equipment from the dry closet to the layout, it is almost an hour before you can start operations and then it takes at least half an hour to put everything away again.

So, spare time during the week is generally devoted to minor construction projects, repairs, adjustments or just plain arm-chair railroading while operations are reserved for weekends and holidays when there is sufficient time to set up the railroad.

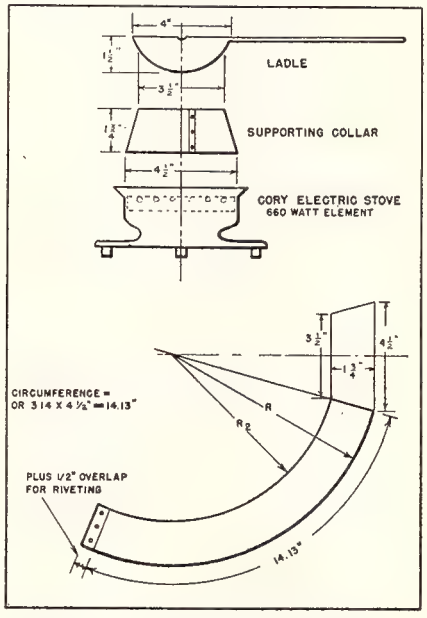
Future Plans

Model railroading is a screwy hobby for one who leads the nomadic life of the Army. This is the ninth layout I have started construction on since changing to O Gauge twenty years ago, and not one of them has ever been completed. The present layout has just been dismantled because of the termination of my current foreign service tour and return to station in the States. I suppose I should change to some other hobby such as photography or stamp collecting. But, perhaps I had better wait to see if there will be room in my next set of quarters to construct the swell new layout I have just planned. Meanwhile I might as well complete those six car kits, bought before my departure for the wars, and try to find parts to finish that locomotive whose construction was bravely started over a year ago.

This Department is for the benefit of all readers. Questions will be answered through these pages or direct by mail by one of the country's leading model railroad authorities. If you have any building kinks of your own, send them in.

SOMETIMES it is difficult to secure those tiny bands around a loco boiler. It can be done nicely with Miracle adhesive but I also bend the ends of the bands up under the belly of the boiler. Caution: Lacquers which use an acetone type solvent will temporarily loosen the adhesive so secure the bands in place during painting. . . *J. Williams*

SOFT metals such as lead, babbitt, pewter and type metal are often used for castings and could be used by more hobbyists if they realized how interesting and easy the job can be. The first requisite is a plumbers ladle, which is cast iron, normally about 4" in diameter with a 10" handle. They can be purchased from the local hardware store or one of the mail order houses for about 50c. There are various means of melting the metal: Setting the ladle on the hot coals in the fiurnace (lookout—the handle gets hot and coal gas comes out the partially open door); Using the gas range in the kitchen (if the "Boss" will let you, but don't spill any of the hot metal on the kitchen table or linoleum floor). The safest method however is to have a stove of your own on your



workbench. For ease of use and control, this can be, preferably, a small electric hotplate. If you have a glass coffee brewer such as Cory or Silex, you can no doubt "borrow" the electric stove for the casting job, or perhaps, it would be better to have one of your own and save family arguments. The sketch shows a Cory stove, 4" ladle and the supporting collar. The layout for making the collar is self-explanatory. Make a pattern on cardboard, then cut from tin and rivet. . . . *D. J. Prudhomme*

A SUBSTANTIAL fence for the top of your retaining wall may be made by driving wire brads in at intervals to represent posts, then soldering straight lengths of wire at the top and half-way up these posts to represent the fence bars. Brass escutcheon pins will solder better than steel brads.

WHEN working far back on your layout, protect yourself and the tracks in the foreground by covering them with several thickness of newspaper.

IF your model railroad is like mine, I guess you have enough wrecks. But after viewing a B. & O. wreck near my home some time ago I decided to add a genuine wreck scene to my HO gauge model railroad. I am going to imbed the remains of a wooden StromBecker locomotive in the scenic plastic along my right of way before it dried and is painted to represent mud. Then I am going to take some of my first cars which are not to my liking and cut them open according to photos of the wreck I took and scenes I have noticed in railroad books. One box car will be twisted open with grain spilling out—the grain will be cream of wheat mixed with shellac. Another box car will have dummy crates piled about it by the wrecking crew.

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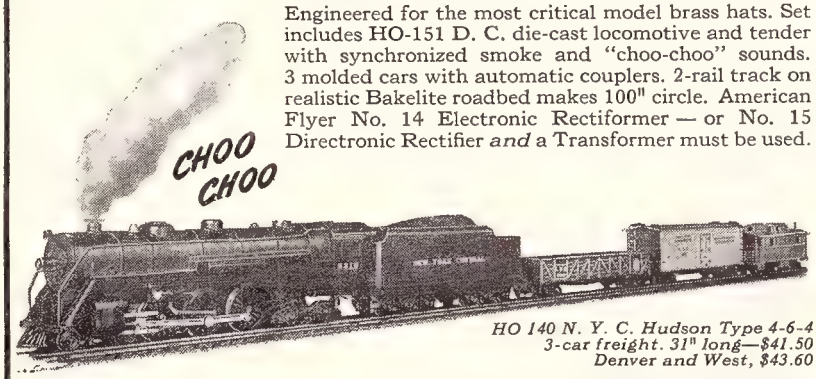

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Hopper cars will have dumped their scale coal into heaps along the right of way, and perhaps some scale cows will be wandering around or laying stone cold dead beside a splintered stock car.

Then I can bring up my Ideal wrecking crane and the rest of my work train (when it is completed), place some miniature people around, and have an interesting wreck scene to photograph. However, even when the wrecker is not working, I will leave the evidence of the wreck beside the track as an attraction for on-lookers and a reminder to the engineers to take it easy . . . *Alan Schueler.*

(Editors Note: Send us some of those model wreck pictures if they are well focussed, Alan. Sounds like a novel idea. Don't forget the automobiles stopped along the nearby highway with crowds watching the scene of carnage.)

OIL and dust cause a lot of grief on a miniature railroad. A wheel tread picks up a bit of oil, then rolls over dusty track and you have the beginning of a gum that grows and grows until a derailment causes you to look the engine over. Once a month is none too often to put each locomotive in the shop for light service. Clean the wheel treads, the collector shoe (if any) and the commutator, then oil bearings *sparingly*. Too much oil invites dust and disaster . . . *J. J. Shermann.*

A SET of old salt shakers comes in handy when adding scenery to a model railroad. They are very useful in sprinkling fine sawdust or sand evenly over an area of wet plaster. The amount of sand is easily controlled and some interesting scenic formations are possible . . . *W. McConville & E. E. Stettin.*

MANY modelers frown on wood and cardboard construction for cars when actually a wood base is the handiest foundations upon which to fasten details and when tinted, a good grade of bristol board looks exactly like metal. In general, use wood to box up the car outline; the two sides and ends, one roof and bottom. Don't forget that lightness of construction is helpful; a locomotive will not pull as many cars if they are solid and heavy. Wooden car sides should be made with the outside grain running the same direction as the sheathing which is marked on with a scriber used against a square. An old glass cutter is a good tool for this job as it rolls the grooves rather than pulling through the wood.

I MOVED my small HO gauge railroad from the cellar to the living room for the Christmas season. Since it was not finished, I had to keep many tools and parts handy. My mother always wanted me to put them away when I was finished working; I wanted to keep them on top of the railroad table so I could have them handy. I solved this problem by getting a small carton and covering it with brick building paper. I pasted on black paper (from some of my father's photographic supplies) for windows and doors. I wrapped an old shade roller with more brick paper for a chimney, and made a water tank out of a church collection bank painted black. This factory I used alongside a spur track to cover the tools and parts I needed most in my construction work. It proved to be a very handy location for the tools besides adding an interesting building to my railroad at small expense . . . *Billy R. Johstone.*

WHEN I wanted to add grass to the scenery on my model railroad, I decided to use saw dust painted green. I didn't like the hideous color of the green sawdust sold at Christmas time, and unfortunately couldn't lay my hands on any regular saw-dust when I wanted it. I was thinking about this problem in school when I had to sharpen my pencil. The pencil sharpener proved to be full of high grade saw-dust. I went around after school and at noon-time for three days and had enough pencil sharpener saw-dust to put grass on my table. I bought a can of paint to mix the saw-dust with and found that I had to add a good quantity of turpentine to thin the mixture down enough to apply with a brush . . . *Monty Candalace.*

CERTAIN of the large commemorative stamps cut down a little make excellent posters for walls and fences around your pike . . . *C. H. Arnold.*

HOW much fun you can have on a simple oval of tin-plate track without any switches? You must have two pieces of motive power of different speeds, the faster one with sequence reverse, the slower one without it (or with it disconnected). You start out with the faster engine ahead. When it has raced around and around and is all ready to smash into the rear end of the slower engine, you reverse it where upon it races back in the face of the other engine which has not reversed. The trick then is to see how close you can come to a cornfield meet between the two engines without actually having one. The same stunt can be repeated again and again by various "dispatchers" to provide a hilarious evening. Cars usually mean just more wheels to put back on the tracks . . . *W. Small.*

IF your model layout includes a trolley line you might like this idea. Have the street corner car-stops at safety-islands, with the islands on the far side of the car as usually viewed. Mount the island on a central pivot and arrange a devise to "upset" it one half turn at a time, On one side of the island you cement many little cast passengers who are waiting for the street car. On the other side, nothing—or maybe just one fellow who seems to be running to catch the departing car.

Now when the trolley stops at the loading platform or safety island, you upset the island so that after the car leaves, the people seem to have boarded it. When car passes the other way, or a work-car goes by, island can be set again to have the passengers showing.

Or the next car can discharge an island full of passengers.

The island should be short enough so that when it rotates on its axis the end does not stick up above the car roof and spoil the magic of the scene. Doubtless the same scheme could also be used with trains at stations, provided the platform was out of sight of the viewer.

I have not figured out the exact method to upset the island, but am sure that any of your readers who want to try this idea can work something out . . . *John O'Neill.*

Questions and Answers

I HAVE burnt out two rheostats with short circuits on my railroad and am getting slightly broke with the expense of replacing them. Is there any way I can repair them and how can I prevent further burn-outs? Perhaps I should make it clear that these short circuits are just temporary affairs, and do not exist all the time . . . *Karl E. Hermann.*
ANSWER: A burnt out rheostat is so called because the coiled resistance wire is burnt through, by overheating, at one spot. Fortunately, that one spot is nearly always at the "fast" end of the coil. If you can somehow pry the wire loose from its ceramic coating, you can often unwrap a turn or so and twist the ends together, or wrap one end around the binding post. Although you cannot solder resistance wire in the usual sense of the words, you can do a non-professional job by flowing so much solder over it that a contact is made.

A big help in preventing the burning out of rheostats is a circuit breaker or fuse. However, these are usually rated to prevent burning out of the power supply, which may not keep the rheostat from burning out. If you can place a fuse or circuit breaker in series with each rheostat, just over the amperage rating of that rheostat, you will prevent burn-outs. I have before me a diagram of a Pittman HO rheostat that gives its maximum current at the upper end as 1.8 amperes; so a 2 or 3 amp. fuse or circuit breaker should give enough protection. Without extra wiring, you can take this precaution: whenever there is a dead short circuit (or a likelihood of one as in first running a new or repaired loco) turn the rheostat *all the way on.* This keeps *any* current from flowing through the resistance wire and throws any short circuit protection onto the power pack breaker. This is not necessary with passing shorts such as caused by a derailed car or engine.

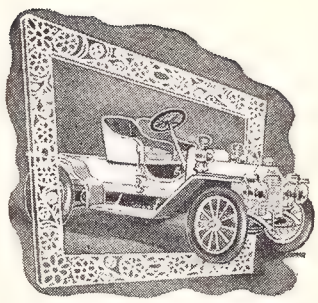
THIS isn't exactly trouble, but (1) What is the difference between a single wood sheathed box car and a double wood sheathed box car? and (2) What is the difference between a switch and a turnout? . . . *George K. Reed.*
ANSWER: (1) A single wood sheathed box car has outside braces, supporting a single wall of wood. A double wood sheathed car has a wall, or sheathing, on both sides of the braces which you cannot see: the outside of the car is smooth, with the boards running vertically.

ON my model railroad, I am installing a lake of real water over which the train passes on a bridge. Some of my friends say that water around a model railroad will cause it to rust. What do you say? . . . *Jay R. Fields.*
ANSWER: The water in itself will not cause your railroad to rust, however, any steel or iron parts are liable to rust if they come in contact with water. Even high humidity in the summer air will cause rust if the line is not used frequently. As a precaution, wipe steel parts (such as tin-plate track) occasionally with an oily cloth.

There is a possibility that your engine or some cars will get wet, however, and in this case, you might want to take precautions to prevent rusting of steel or shorting of the motor. If your cars get dunked in the "lake," shake off all water possible and dry them with heat such as from a warm air register or on an inverted pie-plate atop the stove (use gloves). For an engine, remove superstructure to allow better access to motor. Brass parts of course do not need rust prevention but steel parts do, even if supposedly plated or painted—the edges are often attacked. To be sure all water is out of motor, dip it in alcohol which unites with water and evaporates quickly. Dry with heat; an electric hair drier or heater is another good heat supply. Dipping in oil after immersion is useless since the oil and water will not mix; water will remain in droplets. Try to keep painted parts out of alcohol although it is better to spoil a paint job than a good motor. Also be careful of effect of heat on plastics.

I'VE been tossing spools of wire I've had occasion to buy into a shoe box for possible future use. The labels have come off some of them so that I can't tell the difference between resistance wire and tinned and annealed steel wire since they look alike. Can you suggest a way of telling? . . . *Tom McKenzie.*
ANSWER: The steel wire will be magnetic, while the nichrome resistance wire will be non-magnetic. Also the steel wire will solder, whereas the nichrome will not solder.

MY HO railroad, now nearly completed, will have a four track main line using locomotives of P. R. R. prototype only, such as the T-1, GG-1, E-6 and so on. I am planning on a tunnel in one corner, but my dealer cannot find a source to get me a four track tunnel portal. Do you know of any? . . . *Kevin T. Bartson.*
ANSWER: No manufacturer makes a four track HO tunnel portal because the demand would be very limited. You can cut out your own from a piece of plywood with a jig saw. Or, you can model one in "stone" on heavy linoleum using various types of linoleum and block-cutting knives. Another idea is to actually cast a "concrete" tunnel portal in a light wooden mold using plaster of paris. You can build a crude framework of wood and cement a heavy bristol board portal (cut with scissors or a razor blade) to it.



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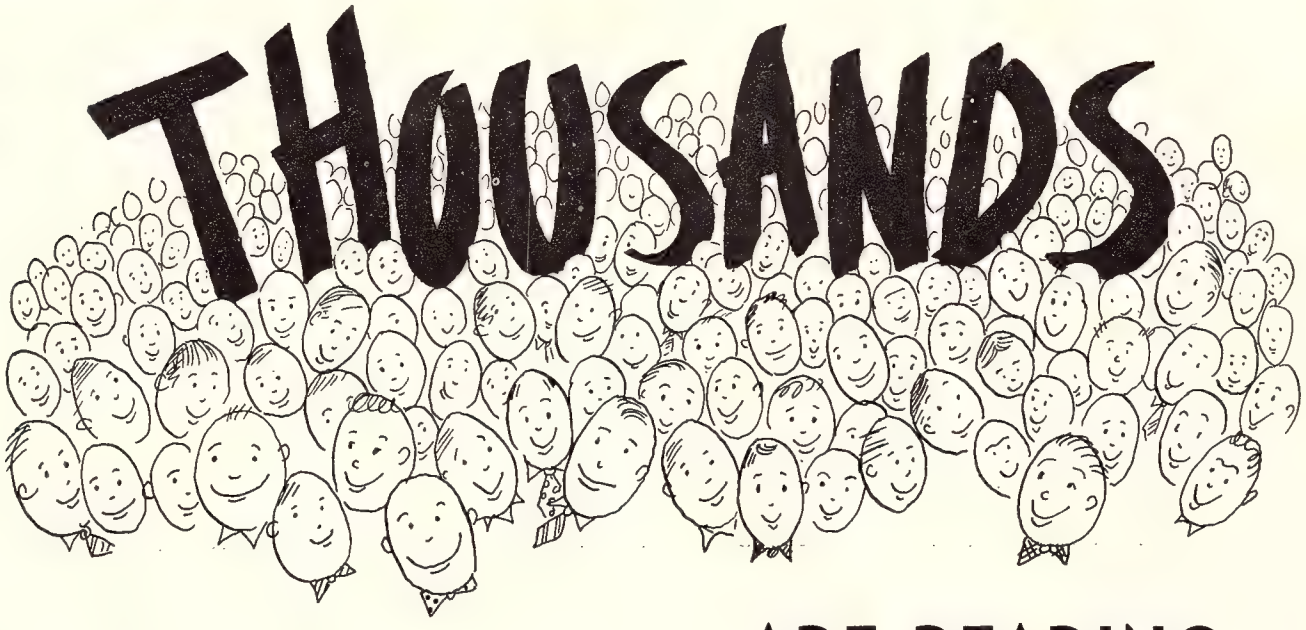

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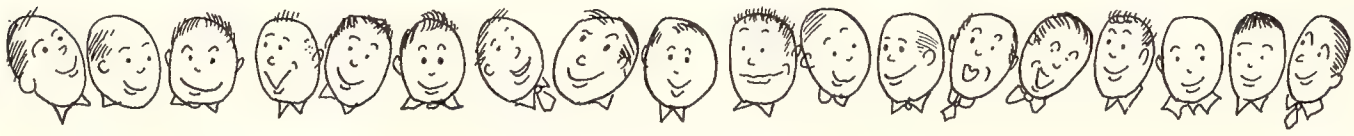

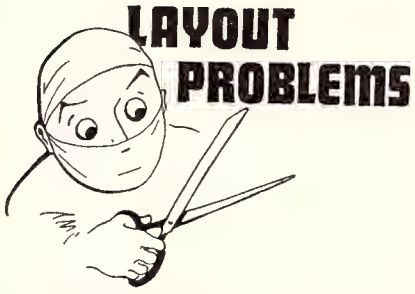

Each month the Layout Doctor will answer questions put to him in his fan mail. These questions will be reworded in the interests of brevity and clarity and those not requiring extensive work will also be answered by mail if a stamped and addressed envelope is enclosed.

THE fellow who wanted to bring out the HO gauge engine kit a few months back and asked your advice started me thinking. My only trouble is that I don't know what kind of an engine would have the widest acceptance. Might say that I am a retired policeman, with wide machine-shop experience and have a fairly complete shop in my garage. What type engine would you recommend my making in HO gauge—*T. M. McR.*

ANSWER: The best type of engine would be cheap, well-made and well-detailed. But the answer you want probably is the wheel arrangement. I have said for some time that the one loco that is needed is a Forney type, say 0-4-4T or 2-4-4T such as used at one time on the New York elevateds and still in service in the tropics. This could, by changing a few parts, be made a double threat loco for both regular HO and HON3. It could take sharp curves and would be at home on all types of trains that might run on a one (iron) horse model railroad.

If a more conventional engine would suit you better, how about a low wheeled 4-4-0, vintage of about 1905 with straight stack, box-top cylinders and spoked pilot wheels. Make the drivers 48 to 53 inches instead of the 72 inches on the Mantua Belle which does very nicely for high-speed passenger service. I'm talking about low speed mixed and freight service down through the swamps.

I THINK I can design my own layout without your able assistance, but I do have something to ask you. I have made several drawings on Bristol board and pretty soon I will get what seems to be *the* drawing. Then I want to have several copies made to send to various friends for criticism, and to mark in scenery, power supplies, elevations, etc. on various ones. Well, before I dropped mechanical drawing from my roster (or it dropped me) I found out how to make a tracing and how to make blueprints, but I know I can't make blueprints from this heavy bristol board drawing paper and I hate to go to the trouble of making a tracing. What can I do?—*Fred M. Jefferson*

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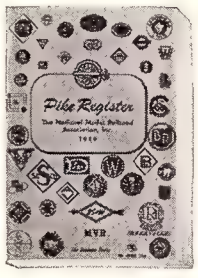

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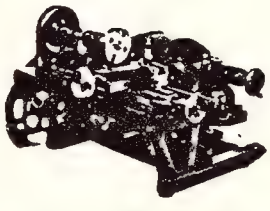

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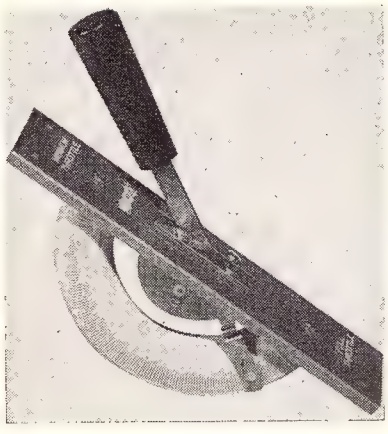

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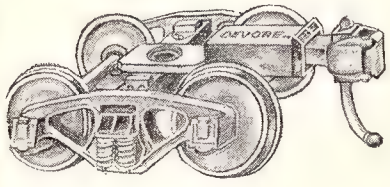

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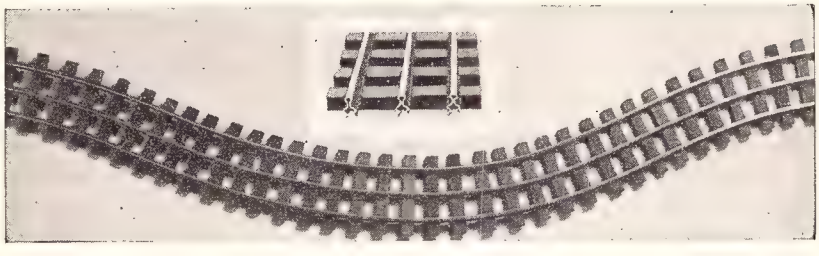

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thought, I might mention making your drawing on tracing paper to begin with—no, not that *tissuey* paper that tears so easily, but a good grade of vellum tracing paper which will stand a great deal of erasure and scratching out or tracing *cloth*. These are not as cheap as paper, however. Use a 6H or 8H pencil and make lines lightly until you are positive they are where and how you want them.

Work you don't want, but somebody else might care to make a tracing which doesn't take too long and offers a chance to correct errors.

Under money, I would list photostating which you can have done by any blueprinting concern. The minimum charge for a 9 x 12 inch photostat is usually 35c so you can see how much the job will cost. If you are going to make many copies, ask your blueprinter about making an auto-positive. This is a tracing made from an opaque original by a contact process. From an autopositive, you can have any number of blueprints made. Or you might consider black line prints since they are easier to make on, although slightly more expensive.

AMONG the purchases I made when I started in HO gauge was a 12 volt DC power pack which had various indicator lights as well as speed and direction controls built right in: "just attach two wires to your track, plug the line cord into your light socket, and you are ready to operate," the directions said. That was fine while I had a single track railroad, but I have since completed a second track all the way around my eight by twelve foot table (and expect to add a branch line), but I now find that I cannot run a train on the second track in the opposite direction to the one running on the original track, as real railroads do. I am enclosing a diagram of my layout and the make and model number of my power pack and hope you can help me—*Ross Moore*

ANSWER: You are up against a problem to which there is no neat solution. Up until recently (if you follow the ads) you'll notice that most power pack manufacturers made nice package power supplies which included reverse and speed controls in addition to the needed circuit breaker and master switch. You could just "hook two wires to the track" and get a train running—that is, until you wanted to run two trains at once in opposite directions or at different speeds. True enough, the pack has *oomph* enough to run four or five or ten engines at once in HO gauge, as long as you run them at same speed and direction. The late model power supplies, however, provide that much needed thing—terminals for *uncontrolled* direct current too so that you can add other "throttles" or build your own control panel and still get the use of the controls on the pack.

However, since you have bought an old style pack without uncontrolled DC you have several options if you wish independent control of your double tracks:

(a) Buy another similar power pack with speed and directional controls and use IT for a second track. You would

then need another for a branch line, another for your turntable, another for a wye and so on.

(b) Turn your rheostat (speed control) full on, leave your DPDT Direction switch set for one way (either way) and run the DC from the terminals to a control panel which you can build to suit yourself for any number of blocks.

(c) Open up the can of your power pack and affix wires leading to new binding posts which will give *uncontrolled* DC. From these binding posts you can then run wires to a control panel (DPDT switch and rheostat) for your second track. You can still use the original controls on the power pack for your first track, running the wires from the original controlled DC terminals.

There is also a tendency on the part of many power supply manufacturers to regard their packs as toy transformers to be set on top of the layout like we used to do in tin-plate days. Nearly everyone I have seen is equipped with little rubber feet, presumably so they won't disarrange your scale model lawn. Of course you can sit the pack on the floor, but then how will you reach the controls, if any? And aren't you likely to kick the can around on the floor? You can put it on a chair, stool or shelf but it is likely to fall, be pushed or be dragged to the floor.

The correct location for a power pack is screwed to one of the supports of the benchwork or to a special panel, but most of these cans with rubber feet cannot be so fastened without dismantling them. The controls (preferably in panel form) should then be at or just below the edge of the tablework.

Since you already have bought your power supply, a relatively expensive investment as model railroading goes, you must make the best of it, using alternative (b) or (c) above. However, all ye neophytes harken: unless you are content to stick to a single track railroad with all trains always running the same direction and at the same speed, without a turntable or other reversing sections, make certain the power pack you buy does *not* include speed or direction controls—*unless there are also terminals for uncontrolled DC* for adding your own controls for another track. A circuit breaker may well be included in the pack, however. Save yourself from Moore's dilemma.

WHY are you prejudiced against O gaugers? I have yet to see an O gauge pike doctored in your interesting column. Everything is HO, HO, HO. Who do you think you are? Jolly old St. Nicholas?—*Matty Stoanlee.*

ANSWER: The prejudice is not mine, but my patients'. I have to work with what layouts come in and they are all HO, with a smattering of S gauge. I do recall doctoring an O gauge pike some time ago and have now one tin plate layout I am saving for an all-tinplate column later this year. Most of the newcomers to the hobby, who seek my help more often than others, pick HO gauge.

As a matter of fact, I don't recall seeing even a TT gauge layout problem, so size can't be the only answer. I would like to see a huge TT gauge layout in the typical "lodge hall" area usually thought of as suitable for O gauge. Boy, wouldn't that give realistic expanses of scenery and trackage? Who has the largest TT gauge layout anyway?

I AM planning on a very large HO gauge model railroad in my cellar, with double tracked main line, two or three levels and an automatic turntable. I would like to build automatic signalling, too, and wonder if you could tell me how to do it?—*R. R. Mansfield*

ANSWER: That sounds like an ambitious project you have cut out for yourself and I wish you every success in it. It will take a lot of time, work and a pretty fair amount of money. My advice to you is to build your entire railroad first and get it operating smoothly; then, and *only then,* attempt to install automatic signalling.

It takes many, many pages to go into automatic signalling in detail. However, there is a good system available from National Model Railroad Association, Box 1238, Station C, Canton 8, Ohio. You must be a member of the NMRA (or send $2.00 to join up for its many benefits). Then you can buy kits for automatic control at $2.00 per block, including a thick explanatory booklet. This booklet explains the basic control circuit, and gives diagrams for adding decoration (signals) and protection (train stop), for one and two directional opera-

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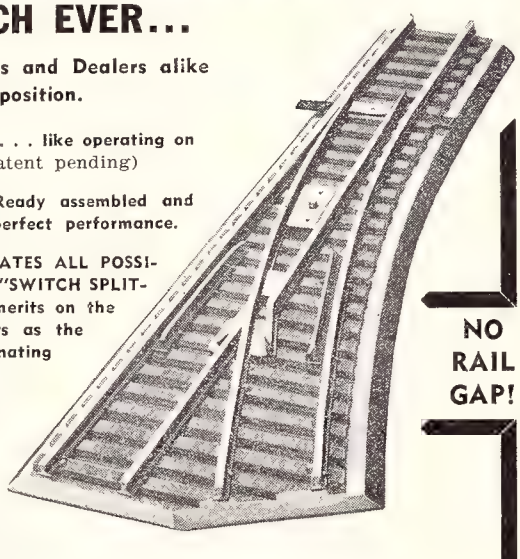

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tion, and two or three indications. The kits however do not include signals, but only the needed relay, etc., for making them work.

WHAT is all this about switches—#4, #6, #8 is all I see and it seems the higher the number, the longer the switch. Also, what happened to #3, #5, #7, etc. My gauge is HO.—*Barry Garrison*

ANSWER: The switch frog number is used to designate turnouts in prototype and model practice. It is derived from the angle of the frog (where the rails cross) by a sort of trigonometric ratio. What concerns model builders more is the radius of the curved part of the switch. In your gauge, HO, the curved part of a #4 switch has a radius of about 15"; a #6 switch, 36"; and a #8 switch, 68". Practically, #4 turnouts are used for curves of from 12 to 24 inches in radius by suitable curving the part of the switch that extends beyond the frog on the branch, and by continuing the desired radius curve on beyond the turnout. #6 switches will work for curves from 24" to 48" radius with little noticeable distortion. #8's are used for anything larger.

#3 and other numbers smaller than 4's are not considered worth manufacturing since the radii would be too sharp except for trolleys and trolley modelers would not even pay for tooling up. However, wye switches are #3, with the frog twice the angle of a #6 switch. #5 switches in HO are made by Midlin.

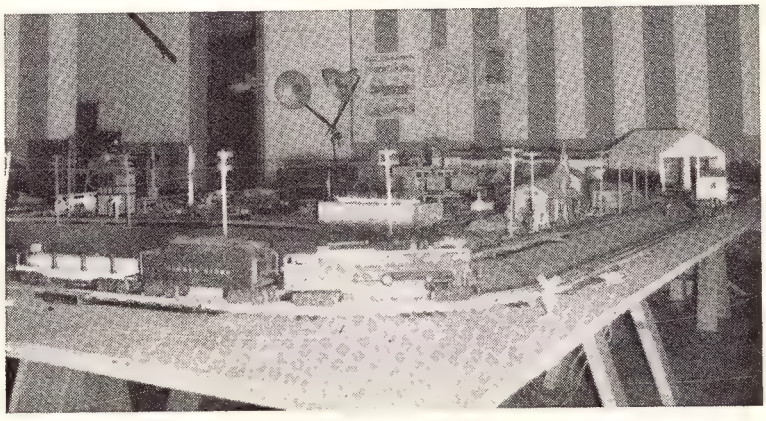
A Tinplate Club

A good example of what the younger set of railroad modelers are doing. With a little guidance, they'll soon be experts on all phases of the hobby.

By WILLIAM MALONE

DOWN in Terre Haute, (Ind.) where the Pennsy and NYC mainlines cross the Evansville line of the C & E I, you'll find a very active tinplaters' organization. Every Tuesday evening, members of the Terre Haute O Gauge Club gather in the past presidents basement where the club layout is located; truly a railroad modelers paradise. There's the layout, workbench, tools (including power equipment) and storage space.

The club was organized this past summer, constitution prepared and officers immediately elected. A basement layout of one of the members was chosen as the best place for the club pike; the al-



View of Boone City terminal. Mainline trackage at extreme left branches into two tracks at Boone City. Engine house at rear of table has two tracks. Wooden box to left of siding is block control.

LAWRENCE W. SAGLE

One of the leading figures in model railroading today and known from coast-to-coast as a genial individual with a thorough knowledge of miniature railroads and their prototypes. "Larry" got his experience with the B & O (he's in charge of the model railroad department), but even as a youngster he was deeply interested in railroads and .....

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ready established layout was kept intact wherever possible because drilling holes in ¾" plywood sometimes proves expensive.

As a start, several layouts were combined in the club pike bringing equipment roster to 3 engines, 20 cars and about 100 feet of track. This miniature empire still has about the same amount of equipment but a wealth of detail has been added. Several house kits were purchased as well as railroad buildings; other structures are now under construction. English-made trucks and cars are quite numerous in the streets and boulevards of Valley Heights and plans are now being made to finish the layout by applying plaster of paris to the table representing hills and valleys.

The layout's electrical system is quite simple. The main transformer (250 watts, AC) supplies juice to the accessories on two poles, the other two poles being used for track juice. The pike is electrically divided into 6 blocks: block 1 is the main line; 2 and 3 are located at Valley Heights; the wye there is block 4. Block 5 is located at Boone City together with #6 which, with a DPST switch, controls the engine house tracks.

Operation of the layout consists mostly of switching and operation of Lionel accessories as the mainline is only 6 feet long and space (and switches) are far too scarce to allow for yards or makeup and breakdown of trains. At Valley Heights, one of Lionel's magnetic cranes has been installed. Future plans include lengthening of the mainline to 25 feet and installing a 15 car capacity yard at Boone City. The club also hopes to have a few industrial sidings, a shop track and intends to purchase some scale passenger equipment with tinplate trucks to provide accommodations for patrons of the line.

All equipment on the layout is owned individually by members. Before 1950 is over, the club will be able to boast 100% NMRA membership. It will join the "Wabash Valley Lines" system as the "Southeastern Division" with full rights to name and herald. Present officers of the club are: Jack Tawil, Pres.; D. Fassburg, V-pres.; Wm. Malone, Sec.; R. L. Francis, Treas.; and Kent Biel, Genl. Mgr. Oh yes, the honorary member (who pays the juice bill) is Mr. John G. Biel. The club collects weekly dues which usually manage to keep the treasury balance over $5.

If things keep going the way they are, it will make a barrel of fun and model railroading for members and friends of the Terre Haute O Gauge Club.

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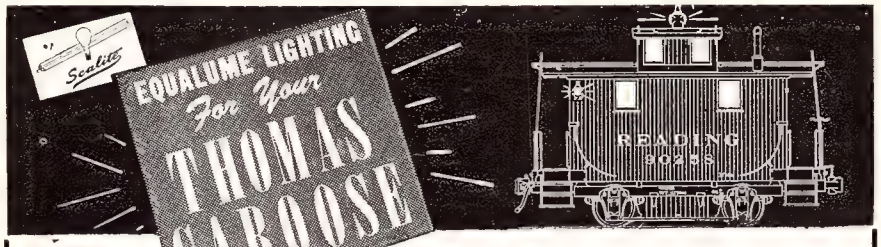

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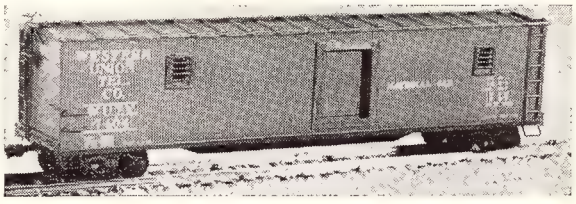

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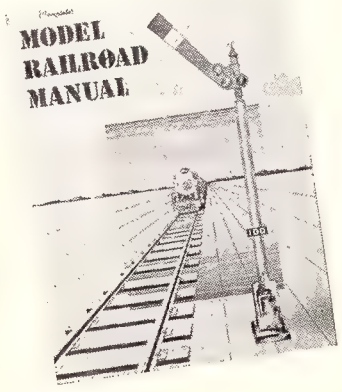

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ALONG THE TINPLATE TRACK

(*Continued from page 23*)

duced to special order. As a matter of fact, if anything, we have seen more actual 2115 interurbans than 2116's, although neither unit can be justly regarded as common at this vantage point in time.

During the period they made trains, 1904 to 1923, Voltamp issued but five catalogs covering their line, so it is rather difficult to date the various items and types as definitely as might be liked. The four and eight wheel trolleys in their earliest versions probably came out around 1904 when Voltamp first delivered electric trains, likely the four wheel car first and then the eight wheel. The second type of trolley is shown only in their catalog No. 4, which came out in 1913 or 1914. The eight wheel third type trolley is pictured in their No. 5 catalog, issued in 1922, when they were making a last effort to push the train line. The train line was sold to Boucher the next year, and Boucher discontinued the trolleys and electric type locos at once, manufacturing only the steam type models. The four wheel trolley with vestibule ends was never catalogued, but we have seen the actual car, so can attest that some were actually made.

The early model Voltamp interurban was first listed in their catalog No. 3, which probably dates around 1912, but was manufactured as early as 1908. The second type interurban is shown in the Voltamp No. 4 and No. 5 catalogs. Illustrating a certain variety of car in a catalog does not, of course, indicate that the new design has just then been introduced, but it does mean that the new model is being made at least by the date it is shown. In the old days manufacturers often continued to use old cuts in their catalogs for years after a design was changed, as, for example, in the case of the Carlisle & Finch No. 42 car as described last month. Oddly enough, although the same cut was used in their pre-World War I No. 4 catalog, when Voltamp pictured the No. 2116 interurban in one of their last ads to the trade in 1922, it was described as "A new electric trolley." The answer to this is probably that they intended to show the third type of eight wheel No. 2123 trolley and used the wrong cut by mistake. The vestibule model of the 2123 bears all the stamp of a post-war job. Its introduction, together with the uncatalogued vestibule four wheel street car (the specimen we have seen was unmotorized and might be a sample) would seem to indicate that of all early American tinplate manufacturers, Voltamp had the most abiding confidence and faith in the popularity of the tinplate street car.

ONCE you have decided on the track plan of your railroad, have a photostatic copy made so that if the original is soiled, damaged, or lost, you will still have a good plan. Better yet, draw your plan on tracing paper and have several blueprints made.

Economical Panel Lights

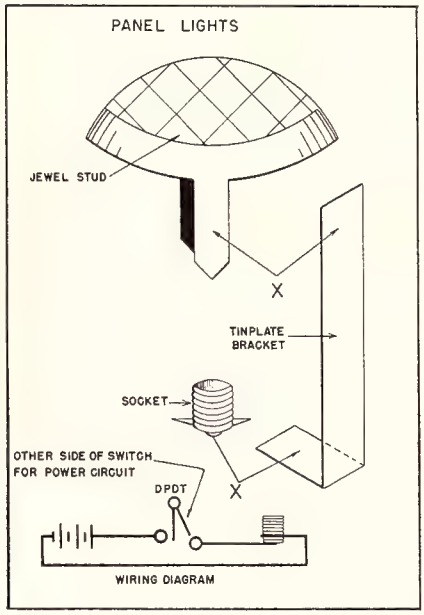
by Eric Brunger

BUILDING a panel for an operating pike is rather an expensive job when it includes indicator lights as well as rheostats, toggles, meters and the like. In order to cut down expenses somewhat, here is a cheap assembly for panel lights.

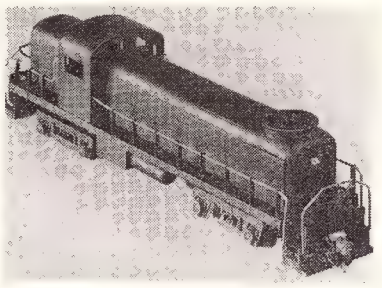
The jewels are obtained from any leather craft shop (known as jeweled studs) for about 30c per dozen. They have a foil backing which must be removed—not much of a job. Light sockets can be obtained as shown, then soldered to a thin tinplate bracket or purchased with the bracket already attached. At any rate, they cost about 60c (radio supply houses).

To assemble the unit, drill a hole in panel board where you need the light. Take the jewel holder and place over drilled hole with one of the prongs inside edge of hole. Mark the point where the opposite prong meets the panel and, with a small drill, make a force fit hole for this prong.

Solder the socket to the tinplate bracket and insert in the hole from underneath panel. Now place the jewel and jewel holder in place and solder the bracket and holder at point "X" on drawing. You may find it easier to do this before you set the jewel in place, in this case, after the soldering is complete, push the assembly up out of the hole, insert the jewel and replace.



These jewels are plastic and are available in red, green, amber and blue. To illuminate your bulbs, it is best to use the long type bulb, GE 46 panel bulbs, 6-8 volts. I use a 3 volt tap from my power pack and this illuminates the lights bright enough yet prolongs their life. The wiring diagram is simple. The toggle I use is a DPDT job and the other pair of contacts, not shown in the diagram, are used to conduct the propulsion current to the track.



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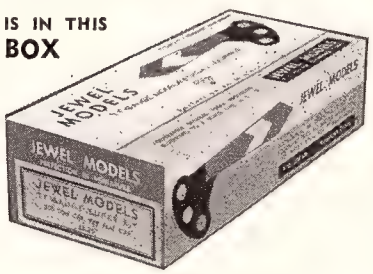

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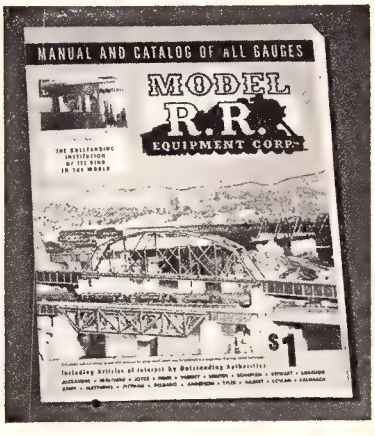

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Consolidated Loco in HO

An old-time 2-8-0 Consolidated locomotive kit of all brass construction is now available in HO gauge. Boiler, stacks, domes and air tanks are brass turnings; the 48" drivers are brass castings made by the "lost-Wax" process, with steel tires and wedge counterweights. The gearing is 35 to 1 using a steel worm and bronze gear. Tender body is of sheet brass (with rivet impressions), base is a brass casting. Motor is the new MAIN M60 which has been developed by leading engineers of the West Coast for small motive power. Kit comes with three type stacks: full balloon, diamond and cap enabling the modeler to cover a period from 1850 to 1910. For complete information,

Refer to M5250. See page 49.

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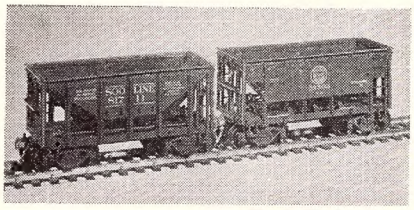
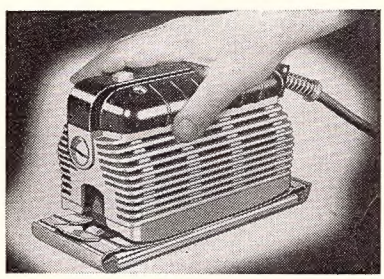
Roundhouse Prods. Acquire Wesley HO Ore Cars

All rights and title to the Wesley Mfg. Co. HO Ore Cars have been taken over by Model Die Casting Co. (mfgs. of Roundhouse Products) Los Angeles and are now being produced as such. This acquisition is another forward step in Roundhouse Products expansion plans.

For the time being, production of Ore Car Kits will be limited to four road names. Two models are offered at $1.35 per kit less trucks and couplers; Great Northern and Soo Line (ribbed tapered type sides) and Great Northern and Duluth, Missabe & Iron Range (flat square box type sides). In addition to the new ore cars, seven new road names have been added to the Roundhouse HO 40' Box Car model kits that feature precision die-cast all metal construction, simplified with an interlocking principle that permits easy assembly in a few minutes. A total of fifteen new models are available, including seven HO 40' metal sheathed Box Cars and four HO 40' Truss side box cars, priced at $1.65, less trucks. Kits include the famous Roundhouse Auto Couplers and Draft Gear.



Electric Sander-Polisher



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Refer to M5350. See page 49.

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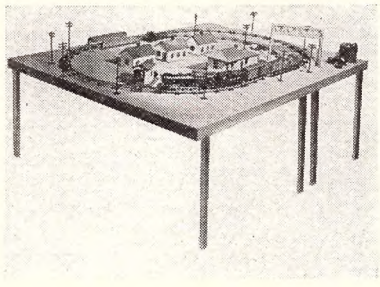

with an imitation grass surface. They are moisture proof and cannot warp or buckle. There are four models in the line including a size 32 x 48" with four caster wheels or folding legs, and size 64 x 48" with casters or folding legs. As the layout grows, additional platforms may be added at any time; sections come drilled with bolts for easy connecting.

Refer to M5450. See page 49.

Lionel's Golden Jubilee

The Lionel Corp., founded 50 years ago and today the world's largest toy train manufacturer, is adding a new feature to their line, known as Magne-traction. This development adds a new thrill to model railroading, reducing to a minimum any power loss between drivers and rails. The result is a more positive traction at higher speeds and increased load-pulling and climbing ability at all times. Every train in the Lionel Golden Jubilee Line is equipped with the new Magne-traction.

They are also featuring several new items including a lift bridge, a steel bridge 26" long whose center span can be raised by an automatic or remote control operation; an operating coal ramp and hopper car (Locomotive backs its freight, with hopper car at end, up ramp. Bottom of car is opened by remote control and unloads its cargo into waiting bin); and an Oil Derrick and Pump (A "walking beam" operates the pump with a rocking motion at slow speed. Oil flow is simulated by illuminated oil column).

New Hand Sprayer

Floquil Products, manufacturers of a complete line of model railroad colors, have developed a new sprayer of prime interest to all railroad modelers. Known as "Flo-Mist," it is a very effective hand

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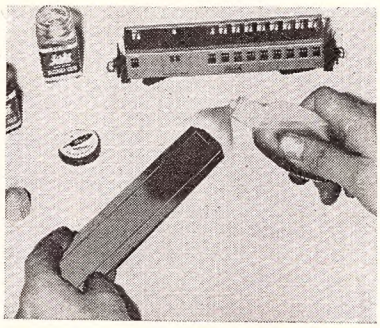

smallest detail, are ruined in the finishing stages. After a few minutes practice, an amateur can turn out first class work with the use of this handy sprayer. *Flo-Mist* is easy to use. Bottle is filled approximately two thirds full with paint thinned to the proper consistency. The sprayer is held 4 to 6 inches from the model and the bottle is squeezed gently, resulting in a fine spray of paint. Priced at only 65c and complete with instruction sheet.

Refer to M5550. See Below.

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Refer to M5650. See Below.

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Advertising Index for May 1950

—A—
Allied Toy Distrib., Inc. ... 37
All Nation Hobby Shop ... 49
Ambroid Company ... 4
American Flyer ... 35
Arden Scale Models ... 45
Arnold, Charles V. ... 36
Athearn, Irvin ... 4th Cover
Atlas Tool Co. ... 33

—B—
Ben's Hobby Shop ... 6
Bussa Model Railroad ... 33

—C—
Cargile, R. P. ... 43
Carpenter, Jean ... 33
Central Valley Model Works ... 30
Collier's, Jack ... 39
Corr's Nation's Hobby Shop ... 3rd Cover

—D—
Devore ... 40
Dyna Models ... 34

—E—
Electronic & Hobbycraft ... 43

—F—
Famous Model Co. ... 3
Floquil ... 43

—G—
Gardner, E. A. ... 40
Geibel, H. J. ... 3
Great Western Locomotive Works ... 34
Greene, H. E. & Son ... 39
Globe Models ... 32
Goldie's Hobby Shop ... 50

—H—
Hemco Model Co. ... 33
Hi-Quality Model Distrib. ... 50
Hobby House ... 2nd Cover
H. P. Products ... 36

—J—
Jewel Models ... 45

—K—
Knight ... 50

—L—
Lindsay Products ... 37
Little Engines ... 49
Lobaugh, R. J. ... 45

—M—
Madison Hardware ... 50
Mantua Metal Prod Co. ... 30, 32, 45
Marnold Mfg. Co. ... 40
Midlin Models ... 41
Model-AC Mfg. Co. ... 31
Model Die Casting Co. ... 31
Model Railroad Equip. Corp. ... 7
Model Railroad Shop ... 39
Model Railroad Specialists ... 33

—N—
National Model RR. Assoc. ... 39

—O—
Olney Miniature Trains and Parts ... 32
Omaha Railroad Supply ... 45

—P—
Pacific HO (Silver Streak) ... 7
Peare, Bob ... 37
Pilot Model Shop ... 31

—R—
Railways of the World ... 49

—S—
Scalite ... 43
Schopp, W. ... 33, 36
Scintilla ... 28
Scranton Hobby Center ... 37
Selley Mfg. Co. ... 44
Simonsen Model Supplies ... 32
Southern Tool & Mfg. Co. ... 44
Special Supply Source ... 41

—T—
Thomas Industries ... 33
Town Craft Models ... 3
Train-Craft Products ... 3
Trost ... 45
Tru-Scale Models ... 41

—U—
Ulrich, C. J. ... 36
Utah Scale Models Co. ... 31

—W—
Walters, W. K. ... 30
Weston Mini-Figure Co. ... 37

—X—
X-Acto Products Co. ... 33

—Z—
Zuhr, Henry ... 32

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